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A DESCRIPTION OF THE LANGUAGE OF GRADES FOUR, FIVE AND SIX BASAL READERS AND ITS COMPARISON WITH THE WRITTEN AND ORAL LANGUAGE OF NINE, TEN, AND ELEVEN YEAR OLD CHILDREN

by

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled A Description of the . . . Language of Grades Four, Five and Six Basal Readers and . . its Comparison with the Written and Oral Language of Nine, Ten, and Eleven Year Old Children . . . . . submitted by . . . . Stuart Charles Adams . . . . . in partial fulfilment of the requirements for the degree of Master of Education.

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ABSTRACT

Textbooks continue to dominate the teaching of Language Arts in upper elementary grades, and ability to read the material they contain is a vital element of success in the present day school system. There is at present little research into the suitability of textbook materials in terms of language difficulty for the children for whom they are recommended.

Utilizing a newly developed language descriptive theory, the Semantic Potential Theory of Language, the study examined the authors' language of six basal reading series, three of which are still widely used in Alberta schools and three of which have recently become the texts recommended by Alberta Education for use in grades four, five and six. Six passages of similar length were chosen randomly from each grade level of each basal reader. According to the Semantic Potential Theory, meaning is a psychological construct in the recipient of an utterance, but may be sparked by the various information contained within the utterance. This information was classified into four categories: denotational, relational, sentential and contextual. The organization of this information is achieved through optional syntactic structures.

The study had a 6 x 3 factorial experimental design for the six series and the three grade levels. Amounts of information were counted, and the syntactic structures in which this information was organized were classified. It was expected that a progressive difference in the amount of information per utterance would be evident over the three grade levels.

In addition, these results were compared with the oral and written language of nine, ten and eleven year old children analyzed according to the Semantic Potential Theory by Fagan (1978) and Cameron (1979) respectively.

It was discovered that with few exceptions, there was no evidence of progressive language development in terms of the four types of information, nor in terms of their syntactic organization. There appeared to be little or no control exercised over authors' language to ensure its suitability for particular grade levels. It was also found that authors' language contained significantly more information of almost every type, than either children's oral or written language, and that with respect to some types of information there was a greater degree of similarity between the written language types (authors' and children's), than between the children's language types (oral and written).

Teachers should depend more upon their own expertise and experience than upon publishers' recommendations, in choosing material suitable to the reading level of their students. If students are having difficulty reading material recommended for their grade level, there is a possibility that the problems lie in the material itself. Publishers should exercise greater control over their choice of material to be included in graded reading series.

The Semantic Potential Theory of Language was found to be a suitable device for describing authors' language. With further refinement and research, it may prove to be useful in identifying those elements of language which cause reading difficulty.

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CHAPTER I

I. INTRODUCTION

The written language mode of communication is still the most widely used method of disseminating knowledge and information, despite assaults by electronic devices upon its position in recent years. In schools, there has traditionally been a dual emphasis upon both oral language, in lecture-type lessons and in teacher-pupil interaction, and upon written language, in textbooks and other instructional materials. Here too there has been a burgeoning of "hardware" in the audio-visual field, but any inability upon the part of the pupil to comprehend written language is still often a guarantee of failure in the system. One of the primary responsibilities of the school has been to teach the child to read, and with this objective has gone concern over ensuring that the language of the instructional materials be suited to the language competency of the child, and that as the child's competency in reading develops, so too does the complexity of the material he or she is able to handle.

Yet, all too often, the job of teaching the child to read has been perceived as primarily, if not solely, the responsibility of the teachers of Grades one, two and perhaps three. This attitude has been reflected in the degree of control over the language of the authors of basal readers; those basal readers designed for the early grades show a marked difference between say Pre-Primer and Grade two, yet at first glance, a comparison of a Grade four reader with

a Grade six will produce no obvious differences.

It would be difficult to argue that there should not be differences, for the competency of an average Grade four student in reading and that of an average Grade six student should be very different. Anyone who has worked with children experiencing difficulty with reading will attest to the crucial point of ensuring that instructional material should be at their instructional reading level, and that a difference of two grade levels can have very damaging effects upon the child, in terms of frustration, and in forcing him or her to adopt unsuitable strategies in the reading process in order to "get by" with these too-difficult materials.

Yet beyond controlling the vocabulary in the authors' language, it is a debatable point as to how else language difficulty can be controlled, or how one can ensure that a pattern of increasing language complexity, if chosen, is a suitable one. An adequate description of written language is a complex issue, open to a variety of theories and approaches. The topic of the present study is a description of the language used by the authors of basal readers designed for use in Grades four, five and six.

This study is undertaken in conjunction with two other studies, each using the same language description, although addressing different topics. The first of the three (Fagan, 1978) is concerned with the oral language of nine, ten and eleven year old children, and the second (Cameron, 1979) is concerned with the written language of those same children, and with the differences and similarities between

these two aspects of the language mode. Consequently, the present study, while primarily concerned with the description of authors' language, will also compare that language with both the oral and written language of the children in Studies I and II. These children are in grades four, five, six, and consequently would be the subjects for whom the basal readers are intended.

II. THE PROBLEM

Despite the great deal of research into written language that has been undertaken, there are many limitations which have yet to be overcome. The large volume of research into readability of written language may demonstrate the point. One major drawback, for example, to a readability study which has as its eventual goal the formulation of some predictive measure of reading difficulty is that it must inevitably be a compromise between "face validity, predictive validity and practical utility" (Bormuth, 1969, p. 100). This means that such a study is not primarily concerned with describing the essential elements of written language, but with what measures or parallels its level of difficulty. This may well be distinct from what causes difficulty, for the factor isolated is often an intervening variable which has no part, or only a very small part, in making language difficult to comprehend.

Another limitation that readability-type studies have had, is that sentence complexity has often been characterized by sentence length, and that the sentence has represented the limit of the syntactic analysis. Indeed many studies,

although mostly the early ones, took samples from the books to be studied by picking out individual words.

More recent readability studies have overcome some of these limitations: Bormuth (1969), for example, attempted to investigate all of the linguistic variables, which appeared to have a bearing upon language difficulty, that had been identified up to that time. In doing so he drew from a number of grammatical theories, including both traditional and transformational-generative grammars. Others have concentrated upon a single aspect of language (for example, syntax, Botel and Granowsky, 1972).

Many of the limitations noted above, also apply to more general written language investigations. Hunt (1965) and Fagan (1969) concentrated upon syntax, Robertson (1966) upon connectives, and Strickland (1962) upon the comparison of oral and written language syntax. All of these studies utilized a sentence-level analysis and, whether transformational-generative, or structuralist, the area of meaning was relegated to a minor role.

One purpose of the present study, then, was to describe the language used in Grade four, five and six basal readers in such a way as to account for the various aspects of language which operate in discourse beyond the somewhat artificial boundary of the sentence, and to include in this description some account of the semantic element (for a full discussion of the role of meaning in language, see Fagan (1978), Chapter Two). In addition, this description was an attempt to escape the notions, as yet unproven in terms of

psychological reality, of deep structure and transformations, the basic tenets of the transformational-generative grammar theorists.

To achieve this purpose the Semantic Potential Theory of Language (Fagan, 1978, Chapter Two) was developed. A second purpose of the study, then, was to test this theory against empirical evidence.

Thirdly, there have been very few studies which have compared authors' language with that of children. Strickland (1962) compared children's oral language with that used in four basal reader series, but she did not investigate the children's written language. Riling (1965) did compare all three types of language, but her study had a number of limitations, which are discussed later in Chapter II. The final purpose of this study, therefore, was to make a comparison between the authors' language used in the basal readers, with the oral language of nine, ten and eleven year olds, as investigated by Fagan (1978), and with their written language, as investigated by Cameron (1979).

III. DEFINITION OF TERMS

The terminology necessary to understand the Semantic Potential Theory, the descriptive tool of this study, is fully developed in Fagan (1978), Chapter Two, and in Appendix B of the present study. The following terms are used in the hypotheses.

T-unit consists of a main clause and any subordinate clauses attached to it. The T-unit was the unit for dividing the language samples into utterances, and enabled the comparison

between authors' language, and children's written and oral language.

Basic T-unit refers to the presence of the minimal number of lexical items which may constitute a T-unit. A basic declarative T-unit might contain only a subject and a verb, and a basic imperative T-unit might contain only a verb.

Incomplete T-unit is a group of lexical items which lacks one of the components necessary to form a basic T-unit. A subject, verb, necessary object, complement, or any combination of these may not be overtly present. The function of the incomplete is discussed in relation to the results of Hypothesis 1(b).

Denotational Information is information which relates to lexical items and includes nouns, verbs, verbals, determiners, quantifiers, negatives, intensifiers, modals, prepositions, conjunctions, and expletives. Clauses and phrases also constitute denotational information since they convey information about nouns and verbs.

Relational Information is information about the relationships that may exist among lexical items. The focal point of a T-unit is the verb and around the verb items may occur in such relationships as subject, direct object, indirect object, and complement.

Contextual Information concerns information that extends across sentence boundaries. It consists of three sub-categories. Referential includes words that refer to another noun/pronoun or idea already introduced. Examples of referential connectives are pronouns, repetition of lexical

items, synonyms, class inclusion, derivation, inclusion, and formal repetition. Logical connectives provide information on the nature of the relationships between topics. Specific relations noted are condition, conjunction, disjunction, temporal conjunction, temporal disjunction, contrast, comparison, and spatial. The third subcategory concerns topics and order. A topic is that information generally to the left of the verb and is about something (desks, horses, etc.). Topics are introduced in a sequence (order) and may be clustered in different fashions. For example, one speaker may produce eight instances of one topic before a new topic is introduced, whereas a second speaker may intersperse instances of the first topic among the introduction of subsequent topics.

Syntactic Information refers to a string of words which are used to convey different kinds of information. The T-unit is the largest syntactic string. This was the unit used for dividing the language protocols into utterances and was not used for further analysis. Within a T-unit is a basic T-unit and possibly additional syntactic structures which are alternates to basic T-units. That is, these alternate syntactic patterns could easily constitute a basic T-unit with the rearrangement or addition of items. In the sentence "He stowed away on the boat which was the Jean Frances", the basic T-unit is "He stowed away on the boat". The additional syntactic pattern "which was the Jean Frances" can become a basic T-unit by substituting the boat for which. These alternate syntactic structures are designated by

various names. Names and examples for these structures are in Appendix B.

Authors' Language refers to the written language of the basal readers designed specifically for use with children reading at the grade four, five and six levels. Authors' language is operationally defined as the 108 sample passages taken from the six reading series.

Children's Oral Language is operationally defined as the oral response of the 108 nine, ten and eleven year olds who comprised the sample for Fagan's (1978) study.

Children's Written Language is operationally defined as the written response of these same children as described in Cameron's (1979) study.

IV. HYPOTHESES

The following null hypotheses were investigated.

1.(a) There will be no significant increase in the number of words per T-unit over grades four, five and six in the basal readers.

(b) There will be no significant increase in the number of incomplete T-units over grades four, five and six.

2.(a) There will be no significant difference in the amounts of Denotational Information per T-unit over grades four, five and six.

(b) There will be no significant difference in the amounts of Relational Information per T-unit over grades four, five and six.

(c) There will be no significant difference in the amounts

of Contextual Information per T-unit over grades four, five and six for:

(i) topics and orders
(ii) Referential Information
(iii) Logical Information

3.(a) There will be no significant difference in the numbers of alternate syntactic structures (Syntactic Information) per T-unit over grades four, five and six.

(b) There will be no significant difference in the amount of Denotational Information per alternate syntactic structure over grades four, five and six.

4. There will be no significant difference in the number of words per T-unit between authors' language, and children's written and oral language.

5.(a) There will be no significant difference in the total amount of Relational Information per T-unit, between authors' language, and children's written and oral language.

(b) There will be no significant difference in the amount of Denotational Information per T-unit, between authors' language, and children's written and oral language.

(c) There will be no significant difference in the amount of Contextual Information per T-unit, between authors' language, and children's written and oral language, for:

(i) topics and orders
(ii) Referential Information
(iii) Logical Information

(d) There will be no significant difference in the number of alternate syntactic structures per T-unit, between authors' language, and children's written and oral language.

V. SIGNIFICANCE OF THE STUDY

A viable description of written language which attempts to account for at least some aspects of the semantic nature as well as the syntactic nature of language, is a necessary step toward understanding language. In addition, a description which avoids the hypothetical notions of deep structure and transformations, and which is based upon generalities which exist in the more tangible written or oral product, will have more practical applications in the classroom than the more theoretical transformational-generative models. Testing such a description against empirical evidence is a necessary step in its development.

A detailed description of authors' language will reveal how closely such language is controlled over grades four, five and six, and show if there is any logical development of the language over those grade levels. If there is, then instructional programs may be improved in light of the identification of the various facets of this development. If there is not, then the validity of recommending books for specific grade levels should be examined.

The comparison of authors' language with both the written and oral language of children should indicate how textbooks can be made to more closely accommodate the

competence of children at specific grade levels, if they do not already do so. The comparison may provide data which can be investigated in an experimental situation to see how written language may be made more comprehensible to children.

VI. LIMITATIONS

1. The scope of the analysis of authors' language is limited to six series of basal readers, only a small part of the written language that children are expected to read at school.
2. The design of the study does not allow for identification of the variations between the individual authors who contribute to a basal reader. The results, therefore, will be generalized to grade levels of specific reading series.
3. The function or type of language sampled from the basal readers is almost exclusively narrative/descriptive. While the language of the children is as close to this function as possible to ensure validity of comparison, it is recognized that there are many more language functions which could have been investigated.

VII. OVERVIEW

This study should not be considered in isolation, but should be seen as an integral part of a wider investigation. This section will therefore outline both the wider aspects and the particular details of the present investigation.

a. The Language Research Project

Three studies make up the Language Research Project:

Fagan (1978), for Part I of the project, developed the Semantic Potential Theory of Language, largely from a theory being devised by Prideaux (1975) and colleagues at the University of Alberta. This descriptive instrument was then employed by Fagan, in analysing the oral language of 108 nine, ten and eleven year old children from four Edmonton public schools. Details concerning both the development of the instrument of analysis, and the research design involved in obtaining the oral language data will be found in Fagan (1978).

The second part of the project was undertaken by Cameron (1979) who analyzed a written language sample obtained from the same children as the Fagan study, according to the Semantic Potential Theory. He then compared his results with those obtained in Part I of the project.

The present study, Part III of the project, will analyze authors' language, using the same instrument of analysis as Parts I and II. The results will then be compared with those obtained in the two earlier studies.

b. The Present Study

Chapter II of the present study will present a review of the related literature, specifically readability studies, more general written language studies, and studies relating children's language to authors'. Chapter III will give details of the research design, the sample, the scoring procedure and the statistical analysis of the data. It will give a brief summary of the Semantic Potential Theory of Language, but a detailed description of this will be found

in Fagan (1978), Chapter II. Chapters IV and V of the present study will contain the results of the data analysis, and Chapter VI will give a summary, the conclusions and implications of the research.

CHAPTER II

REVIEW OF LITERATURE

Ever since reading instructional materials have been produced for use at specific grade levels in schools, one question has persistently dogged both teachers and authors of such materials: how can we ensure that the material is at the appropriate level of difficulty for the children? To the present day there is no fully satisfactory answer to that question, and the most widespread method of judging the suitability of materials is the opinion of the teacher himself. Obviously the validity of this opinion will be dependent upon a variety of factors including competence in understanding the factors that indicate difficulty, and experience, and knowledge of the pupils for which the materials are intended.

That is not to say that there has been no research into the problem area: there has been a great deal. There are two methods of assessing the difficulty or "readability" level of a text. The first is to apply one of the many readability formulae which will assign a grade level to a piece of written language. Such formulae exist for a wide variety of specific materials.

The second method is to measure the readability by either constructing a set of questions, to be answered by the children for whom the material is destined as a measure of comprehension, or by using a Cloze technique (Taylor, 1953), to achieve the same end. This method is obviously extremely time-consuming, as it involves a different measure

for each different school or class population. The application of the formulae is also, usually, time-consuming, and gives a measure of limited validity (see, for example, Chall, 1958) for a mythical "average" population.

The problem is that the elements of written language which cause difficulty for children have proven extremely difficult to identify. Attempts to do so have been hampered by the lack of a viable description of language, and by the necessity to produce a practical instrument of prediction.

Studies which have attempted to discover these elements of language fall into three groups. The first is that of readability studies. The second is a group of language studies which have not been primarily concerned with readability, but with language description. The third group is of studies which have compared authors' language with the language of the children for whom it has been intended.

I. READABILITY STUDIES

The large number of readability studies published in the last 50 years may be classified according to the criteria of difficulty they have utilized. Three broad groups may be isolated: those employing only word level or vocabulary criteria, those employing both word and sentence level criteria, and other studies which have utilized either a different criterion, for example a measure of syntactic complexity, or a multiplicity of variables.

a. Vocabulary Studies

Johnson (1930) studied basal readers, geography texts

and language texts for grades one to eight and discovered an increase in the percentage of polysyllabic words over these grade levels. He noted a similar trend paralleled the decreasing use of words on Thorndike's 1921 list. Partially on the basis of this "evidence", Johnson devised a formula which assigned a grade placement to a book on the basis of the percentage of polysyllabic words found in thirty, one hundred word samples taken from it.

More recently Carver (1974) has published a formula, or more accurately a scale, which will assign one of five levels to a book on the basis of the average number of letters per word. The only validity data published with this scale was a comparison with Flesch (1948) and Dale-Chall (1948), both of which were found to be more reliable.

The main justification for the Johnson and Carver studies is that they achieve ease of application through the use of Klare's description of the word length variable: one of the best predictors of reading difficulty (Klare, 1974). Certain questions arise, however, about the nature of the relationship between reading difficulty and the word length variable, whether measured in syllables or in letters. Which would present more difficulty to the average eight year old, for example, "dowel" or "dormouse"? Both words have two syllables, though dormouse has more letters. Clearly it would depend upon the background knowledge of the young reader whether or not he understood the meanings of these words, and length alone would not be a critical factor. The question, which must be applied to the wide variety of

criteria used in readability studies is, does the criterion bear a causative relationship with reading ease or difficulty, or does it simply parallel it. This question will be discussed later.

One way to come closer to a valid measure of reading difficulty has traditionally been to attempt some sort of classification of vocabulary into relative amounts of "hard" and "easy" items. The most widely used method of classification has been reference to one or more of the various word lists such as the Thorndike list mentioned above.

Lively and Pressey (1923) were the first to use this method of assessing readability, and they assigned weighted values to the words they sampled, according to the frequency of occurrence from Thorndike's list. Essentially similar methods, though using revised versions of the Thorndike list in some cases, were followed by Patty and Painter (1931), Yoakam (1948), and Wheeler and Wheeler (1948). Both Lively and Pressey, and Wheeler and Wheeler took into account the number of different words found in their samples.

One drawback to this definition of hard words is that difficulty is equated with unfamiliarity, which is in turn equated with infrequency. That is, Thorndike's list was compiled on the basis of words which occurred in various reading material available to young readers. It does not account for the vocabulary of the children themselves. The Dale list of 3,000 "Familiar Words" (Dale and Chall, 1948) did attempt to do just this, however. An unspecified number of grade four students were presented with a long list of

words and were asked to indicate those which were familiar. Only those words so indicated by 80 per cent or more of the students were accepted for the list. As the authors admitted (p. 44) the method of arriving at the list left much to be desired, but it did at least attempt to take the information from the children rather than from their texts.

It would be hard to dispute that the use of an appropriate vocabulary is important for comprehensibility, but how such a vocabulary may be quantified is a moot question. Other studies have addressed themselves to this point in unique ways. Lewerenz (1929) analyzed passages from the Stanford Achievement Test and discovered that words beginning with "w", "h" and "b" had a high frequency in easy material, and that words beginning with "i" and "e" had low frequency. Consequently his definition of hard and easy words was based on this feature alone. This is a particularly good example of choosing a criterion which parallels difficulty rather than causing it, for no-one could suggest that "hygrophanous" is an easier word than "egg".

Lewerenz employed an entirely different measurement in his 1930 technique, wherein "hard" words were defined as having technical or special meanings, and which were derived from Greek or Latin. In this method Lewerenz came closer to avoiding a frequent criticism, that words taken in isolation may have a wide variety of meanings, which may be relatively easy or difficult depending upon the context.

One study which attempted to overcome such a criticism was that of Morriss and Halverson (1938), which analyzed

words in context. Only the "key" words were used, so this was an attempt also to classify ideas as well as words, and these key words were assigned to one of four classes: fundamental word labels, simple localisms, concrete word labels, and abstract word labels. Such a scheme is necessarily somewhat arbitrary on the part of the analyst, and the original study provided no reliability data. Lorge (1939) employed the method and discovered a combination of classes one, three and four correlated .74 with a 50 per cent criterion score on the McCall-Crabbs "Standard Test Lessons in Reading" (1925).

Flesch's "Experimental Readability Formula" (1954) also employed the vocabulary criterion. His formula had two measures: the "r" count, a measure of concreteness, and the "e" count, a measure of forcefulness of style. The "r" count was of references to specific human beings and objects and events, while the "e" count was tenuously connected to a hypothetical oral production of the passage. This formula is notable more for its unusual character than for its predictive value, for which no data were published.

More recently Botel (1962) formulated a readability measurement based on the difficulty of the vocabulary, which was measured against a list of words assigned grade levels according to his own investigation of grades four, five and six basal readers, junior and senior high texts, and adult magazines.

The very fact that all of the above studies have employed only a vocabulary factor in their readability formulae, is a

testament to the perceived importance of the vocabulary criterion. It is clear, however, that the various methods of measuring vocabulary difficulty are limited, as indeed they must be to some extent, for vocabulary is very much an idiosyncratic factor. That is not to say, however, that a better method of quantifying it cannot be devised. The vocabulary factor, in various guises, appears in almost all of the following studies.

b. Word and Sentence Level Studies

The McCall-Crabbs "Standard Test Lessons in Reading" has been the outside criterion of validity and reliability most commonly used in readability studies up to about 1960. The correlations between the predicted level of the readability measure and a 50, 75 or 100 per cent level of success on the Test Lessons is the most commonly used expression of reliability. The measures which have achieved the highest correlations with this outside criterion include the Flesch Reading Ease (1948), the Dale-Chall (1948), the Dolch (1948) and the Spache (1953). It is interesting that all of these formulae, probably the most widely used, include only a measure of word length or word difficulty, and sentence length. Other formulae employing only these variables include Gunning (1952), Wheeler and Smith (1954), Smith (1960-61), and McLaughlin (1969), and Fry's "Readability Graph" (1965).

The methods of quantifying the factors, again vary. The Thorndike list was largely dropped in favour of more recent ones, for example the Dale List, and again word length

was sometimes computed in syllables (for example, McLaughlin, 1969), and sometimes in letters (for example, Smith, 1960-61). Sentence length is almost always expressed in average number of words per sentence.

Having discovered that these two factors combined give the greatest predictability, the authors of the above studies concentrated more upon either increasing the accuracy of their formulae, or upon making them more simple to administer. They are largely variations upon the same theme.

c. Multi-factor Studies

These readability studies were grouped somewhat arbitrarily on the basis of the inclusion within a formula of factors other than those discussed above. Most of the studies to be mentioned in this section, however, are characterized by their initial investigation of a large number of linguistic variables, and the assessment of the predictive value of these both individually and in various combinations. The measurement of predictive value has usually been expressed as the degree of correlation with the outside criterion of a measure of comprehension.

The first such study was that of Vogel and Washburne (1928). An analysis of the passages of the paragraph-meaning section of the Stanford Achievement Test yielded a total of nineteen possible linguistic variables according to these authors, who went on to quantify these and to work out the correlations between these and the median reading scores of the children who had "read and enjoyed" (p. 376) the books

which were studied. The list was narrowed to nine variables on the strength of these correlations. These were:

1. Number of different words in 1,000 word sample.
2. Number of prepositions in 1,000 word sample.
3. Number of verbs in 1,000 word sample.
4. Average number of words per paragraph.
5. Number of words in 75 sample sentences.
6. Number of simple sentences out of 75.
7. Number of uncommon words in 1,000.
8. Number of adverbial clauses in 75 sentences.
9. Number of nouns in 1,000 words.

Their choice of these variables is not explained, but it is presumably on the basis of their correlation with the children's median reading score, although the choice of number nine appears strange, as that gave the lowest correlation (-.262) of any of the original nineteen.

However, the authors then organized these nine variables into many combinations, and found that a combination of factors 1, 2, 7, and 6 gave a correlation of .845 with the median reading scores, and so a regression equation was formulated which incorporated these four variables. The simple regression equation has been the basis of readability formulae from this time to the present, but it in itself is a source of unreliability, for it assumes a linear relationship between each linguistic variable and the criterion of comprehensibility. This is probably inaccurate in two ways: firstly within the variable itself. For example the degree of difficulty between a two- and a four-syllable word is assumed to be the same as that between a five- and a seven-syllable word. Secondly, it assumes a linear development over grade levels for the variables, whereas it seems probable that some factors will be more crucial at lower

grade levels than others. Perhaps even more important than these points, which Bormuth (1966) discusses at greater length, is the fact that language is not made up of independent variables simply added together, but exists in the interaction of its component parts. To assume a linear relationship between graphemes, morphemes, syllables or words, is to greatly over-simplify language, and ignores entirely the whole function of syntax.

Vogel and Washburne make a further unwarranted assumption concerning the relationship of the linguistic variables to reading difficulty. They assumed a direct cause-effect relationship, and further, that manipulation of the variables would increase or decrease the comprehensibility of a piece of written language. They even provided a table of the desired proportions for each item an author should employ in his writing (p. 381). Without further investigation such an assumption was unwarranted, though it has been made many times since this early study. It should be noted in favour of this study, however, that the factors eventually isolated were very similar to those used for the following forty years: a measure of word difficulty, of different words, and of syntactic complexity.

Ojemann (1934) divided his variables into three groups: sentence factors, vocabulary factors and qualitative factors. Of the first group, the number of simple sentences, prepositions and prepositions plus infinitives were found to be significant (correlation $<.60$ with the criterion). All of the vocabulary factors correlated highly with the criterion.

The qualitative factors, concreteness versus abstractness of relations, obscurity in expression, incoherence in expression, were found impossible to quantify. This is hardly surprising considering their somewhat globally impressionistic quality, but Ojemann still considered them important, and attempted to bring them into play when arranging his sample passages for comparison.

McClusky (1934) introduced a new factor into readability studies by taking passages from six subject areas: fiction, political science, economics, sociology, psychology and physics. The reading rate of thirty college students was used to rank them in order of difficulty, and then he investigated four variables: number of ideas, length of words, length of sentences and types of nouns. His first variable yielded no significant results. His second showed that the easiest rated passage, the fiction, had shorter words than the others, but there was little differentiation between the rest. Sentence length again supported fiction as the easiest, but although physics was rated harder than psychology, the sentence length of the latter was almost twice that of the former (30: 18). McClusky then said, "The narrative material is composed apparently of short simple sentences, while the passage in psychology is made up of long complex sentences" (p. 280). He makes no attempt to define these terms "simple" and "complex", nor to measure them. He makes the common assumption that sentence length can be equated with sentence complexity. His analysis of the fourth variable again revealed only a split between

fiction and the other types of material. It does not agree with the rank ordering of the other passages.

McClusky makes a number of generalizations which do not appear justified by his research. Even the statement that "Different types of reading material represent different levels of difficulty" (p. 281) should be tempered by the fact that he investigated only one passage of each type.

In 1935 Gray and Leary published "What Makes a Book Readable?" It was an exhaustive study of written material including books, magazines and newspapers, and it was hoped to discover elements of written language which caused difficulty for adults. From an original list of eighty-two variables, (forty-one word level, twenty-five sentence level and sixteen paragraph level), a combination of five, the number of different hard words, the number of personal pronouns, sentence length, percentage of different words and the number of prepositional phrases, was found to correlate most highly with performance of 756 adults on the specially constructed Adult Reading Test. To these five may be added three other factors which compared well on individual correlations. The three are the number of easy words, the percentage of monosyllables, and the number of simple sentences.

This method of narrowing down from a large number of linguistic variables to a small number of highly significant variables, was valuable in helping to identify the most efficient methods of quantifying the various qualities of written language which caused difficulty. It did not,

however, add much information concerning the nature of, to use Bormuth's (1969) terminology, the actual "independent variables" themselves. Bormuth argues that factors such as word and sentence length are "dependent variables", that is they may be a sign of whatever causes the difficulty, but they do not do so themselves.

Flesch (1943) attempted to identify a factor which others before him had tried to measure, that is level of abstraction in the content of the material. It was assumed, probably correctly, that the more abstract the material, the more difficult it was. Flesch attempted to quantify the factor by counting the number of affixes and the number of personal references in a given sample. The relationship between these variables and abstraction of content is an arguable point. In 1948 Flesch attempted again to quantify the level of abstraction and also a newly devised factor called "Human Interest" to which he devoted a formula. His abstraction measure in his "Reading Ease" formula was simply the average number of syllables per word, which correlated highly with his earlier affix measure, but which seems to be even further divorced from the factor he was trying to measure. The "Human Interest" formula correlated only .4306 with the McCall-Crabbs criterion, and was never widely used.

A more recent attempt to measure what is possibly the same variable that eluded Flesch was that of Bloomer (1959). He cited evidence that the ratio of modifiers to verbs increased as did the level of abstraction of the content. In addition, he stated that "there is a tendency for the

length of modifiers to increase with greater precision in writing" (p. 269). He also pointed out that these variables would be closely related to word length in syllables and to sentence length in words, two variables already proven to correlate with reading difficulty. He measured length, sound complexity and shape complexity of thirty sample modifiers from twenty-three books designed for specific grade levels. All three variables correlated significantly (at the .05 level) with grade placement, and a combination of sound complexity with number of words per modifier gave a multiple correlation of .78. Of course, the relationship between complexity and length of words and sentences could have accounted for a good deal of the variance, but Bloomer was satisfied that he had a viable method of measuring abstraction of material.

An extremely complex study was published by Bormuth in 1969, and it represented the sum of the readability research up to that time. Bormuth was extremely concerned in accounting for all possibly useful linguistic variables identified up to that time. The adjective "useful" is not Bormuth's, but it sums up his attitude toward this topic. He makes two distinctions when talking of linguistic variables. First, as was mentioned above, he is more concerned with "independent variables" which cause reading ease or difficulty than with "dependent variables" which simply measure it. Secondly he states that these independent variables are "manipulable", that is to say that they are subject to systematic change which will affect readability:

these are the variables he attempts to identify. A "non-manipulable" variable may be, for example, the abstractness of the concepts dealt with in the content. If the passage concerns morality, and morality is an abstract and therefore difficult concept to comprehend, there is nothing the author can do about it, short of changing his topic.

In collecting the variables to be investigated, Bormuth made use of a variety of sources, including detailed examination of past readability research, other written language research (for example, Carterette and Jones, 1963), and for his syntactic variables he relied heavily upon transformational-generative grammar. He used the Cloze procedure for evaluating the relative effects upon passage difficulty of the variables, and used the five parallel versions of 650 passages with every fifth word deleted. From a total of 169 variables Bormuth developed twenty-four readability formulae, each designed for a specific task, for example grouping them into passage, sentence and word level.

His findings included some important points, for example utilizing a large number of variables in a single formula not only vastly increases the complexity of its application, but beyond a certain number also reduces its validity. He also found that "not all linguistic variables can be regarded as standing in a causal relationship to comprehension regardless of the magnitude of their correlations" (1969, p. 100). He cited two such examples: sentence length and counts of various parts of speech. He concluded that there are three types of manipulable variables: sentence structures,

anaphora and syntactic complexity.

This last factor was perceived by Botel and Granowsky (1972) as of great importance in assessing readability. They rationalized thus:

> If ... vocabulary frequency plays a powerful role in readability, why shouldn't the frequency with which syntactic structures are used in the language of children also play an important role in determining which syntactic structures will be more easily read and understood by children? (p. 514)

In response to this rhetorical question, Botel and Granowsky developed the Syntactic Complexity Formula, an instrument based upon the transformational-generative grammar theory. The formula, which was to be used in conjunction with a measure of vocabulary, assigned weights of 0, 1, 2 and 3 to various syntactic elements such as sentence patterns, transformations, modifiers and a variety of surface level structures. The weighting and identification of these structures were derived from transformational grammar theory, from language studies dealing with frequency of syntactic structures in children's writing and speech, from research into the "processing" of various structures, and from the intuitions of the authors. They suggested that the list be validated in the future, a task not within the scope of their 1972 paper.

II. WRITTEN LANGUAGE STUDIES

Studies which are concerned with authors' language, but not necessarily from the viewpoint of readability formulae, are given more freedom of specialization. The onus is on

the researcher into readability to somehow account for whichever aspects of language predict reading difficulty, whether they be semantic or syntactic. Because of the extremely complex nature of language description, this is, as we have seen, exceedingly difficult to do. Without this burden, the researcher is free to concentrate upon one specific aspect of written language, and in the studies to be described, this increased specificity is evident.

Carterette and Jones (1963) for example, were concerned with the redundancy of children's texts. They developed a number of equations which were used to calculate the degree of constraint put upon the occurrence of letters in various positions throughout the words used in the 1957 Ginn series of basal readers. They sampled the first, second, third and fifth grade readers. They found that redundancy of letters decreased systematically over the grade levels, that is the first grade material was highly constrained, the fifth loosely constrained. They also discovered that the level of redundancy in the fifth grade reader was comparable to that of material written for the general adult population.

The authors suggest that a similar study of children's oral language be carried out and the results be compared. In a later piece of research, however, (1964) they took a different approach and analysed the redundancy of the books children chose to read for themselves. There was evidence to show that in the early grades children chose books with significantly less redundancy than was employed in the language of their basal readers. The authors suggest that

the high level of redundancy is achieved by too restricted a lexicon, and that this mitigates against maintaining interest for the children. This is an unusual stance, for the trend to identify too many difficult elements in authors' writing is more firmly established than identifying elements which are too easy to be interesting.

Another example of a specific language study is that of Robertson (1966), who analyzed the language of three series of basal readers designed for use in grades four, five and six. Having classified the connectives used in these books, she constructed a connectives reading test, which employed some of the sentence structures found in the readers, and a connectives writing test. She discovered from giving these tests to three samples of elementary school children, that both comprehension and written use of connectives were developmental over grades four, five and six. She further pointed out that the use of these linguistic features in the reading series, did not reflect any developmental pattern.

The methodology of this study leaves little doubt as to the nature of the variable being investigated. By first identifying the particular elements in use in the material being read by the children, and then testing their comprehension of these, Robertson was able to state that the indiscriminate use of connectives and the structural patterns with which they are associated, will produce a good deal of difficulty in grade four classes, and decreasing difficulty over grades five and six. She was further able to identify the particular elements which caused difficulty.

This is in contrast with most of the factors investigated in readability studies.

Fagan (1969) was concerned with the syntax of the written language of basal readers, and he examined three series at the grade four level under the framework of transformational-generative grammar. Having identified the syntactic structures employed by the authors of these texts, he constructed Cloze passages in which different types of structures were emphasized over others. He then administered these tests to a sample of 440 upper elementary school pupils in order to measure their degree of comprehension.

Once again, this methodology enabled him to state categorically that certain structures, in this case characterized as deletion transforms, were more difficult for children to comprehend than others, for example conjoining transforms. It appears that only through such experimental studies is it possible to positively identify the factors within written language that cause difficulty for children. Coleman (1971) makes a similar point, pointing out the drawbacks of correlational studies and the benefits of experimental studies, especially when the language variables are fitted into a stimulus-response framework.

III. STUDIES RELATING CHILDREN'S LANGUAGE TO AUTHORS' LANGUAGE

Fagan (1969) and Robertson (1966) drew from the language of the authors of basal readers in experimenting with the degree of difficulty of comprehension experienced by

children when reading. Some studies, however, have attempted to investigate the relationship, that is the degree of similarity, between the authors' language and that of the children who are called upon to read this language.

Strickland (1962) for example, investigated the syntactical patterns which occurred in children's oral language, and compared these to the syntax of the authors' language presented in four series of basal readers. It should be noted that the comparison was made between children's oral and authors' written language, for implicit in the study was the belief that a commonality of syntactic structures for both language types would ease children's comprehension of the written material. As Strickland stated:

> A major hypothesis of this investigation is that a study of children's speech, its structure and its pattern of arrangement and flow, may offer suggestions for the construction of better reading textbooks for beginners, and possibly for older children as well. (p. 3)

This assumption appears warranted in the light of Ruddell's (1964) research, which took both children's oral and written language syntactical structures, and found that comprehension of written language passages employing the more commonly used oral language structures did indeed aid comprehension.

Strickland's study made a number of other interesting discoveries: for example, the only language pattern common to all of the written language sample, was the Subject - Verb - Direct Object pattern. Other structures were used in what appeared a random fashion, and generally there appeared to

be little or no control over the syntax of the authors' language.

One major drawback to the Strickland study was the model of language description used. It was a "Structuralist Grammar" study, in which the elements of the language were assigned numbers on the basis of their roles in the sentences. Such a description is extremely complex, because of the large number of elements identified, but yet over-simplifies the relations among the elements. For example:

$$\underset{1}{\text{I}}\ \underset{2}{\text{can't remember}}\ \underset{4}{\text{them}}\ \underset{M4}{\text{because I didn't even see them}}$$

(p. 36)

The verb element of the main clause, numbered 2, does not account for the negative, and the subordinate clause, numbered M4 (Moveable 4), would have to be subjected to further analysis to differentiate its component elements. Despite the limitations of the instrument of analysis, the study did point to the great discrepancy between the two types of language it investigated.

A study less susceptible to doubts over the oral/written language relationship was that of Riling (1965), which investigated both the oral and written language of children and compared both to the written language of the authors of six basal readers at both the grade four and six level. Riling, too, employed the structuralist linguistic description of grammar, and indeed had as one of her expressed objectives a comparison with the results of the Strickland study. One similar result was the great dissimilarity between the children's oral language and the

written language of the authors. As Riling put it:

> Even after the conversion of the structures beginning with and, the difference between the structures used in the oral language of children and the structures used in their textbooks is so great that comparison between the two is principally a comparison of two definitely unlike things. (p. 160)

The comparison with written language also produced more differences than similarities: children used more moveables of place than authors, but fewer of manner; they used fewer clauses and phrases in subject and complement positions than did the authors; they used fewer infinitives, and the authors used far more participles and relative clauses than the children. A summary of the comparison was given.

> Textbooks use all of the most-used language patterns of children's written language, and, in addition, use structures not commonly found in children's language, especially the structures for dialogue. (p. 184-5)

Again it was found that none of the textbooks attempted to create a consistent development of syntax.

The Riling study had a number of limitations including those of the structural grammar analysis, and the fact that the children's language samples were responses to the rather sterile stimulus of a single picture. This point may explain the lack of dialogue structures in the language samples. Perhaps the most serious limitation however, is the extremely vague wording of the results of the study and the lack of statistical treatment of the data. Given these limitations, however, the study points to what may be a serious cause of concern: the discrepancy between the structure of authors' language and that of both the oral and

written language of children.

IV. CONCLUSION

Language is such a complex system of communication that the tendency in all of the above studies has been to focus on its different aspects in isolation. In addition, these aspects have been approached and investigated according to widely different theories and judged by varied criteria, be it of vocabulary load, as defined by word length or hard words for example, or be it of syntactic complexity, as measured by structuralist or transformational generative grammar. In addition, the whole aspect of meaning has been largely rejected for study as too complex, yet without this element language research is severely limited.

What is needed is a cohesive description of language which accounts for its complexity, and which is amenable to empirical investigation. Under such a description, the variables within language which cause difficulty for children when reading their basal readers, and for that matter, any author's language, may be identified. The present study is in large part an attempt to develop such a description.

V. SUMMARY

This review of the literature has dealt with three types of research: readability studies, written language studies, and studies which have compared authors' language to the written and oral language of children. It has demonstrated the widely differing techniques and theories which have been applied to written language investigation,

and has suggested a need for a more comprehensive investigation of all facets of language under a cohesive language theory. It has also shown the importance of making the distinction between factors causing difficulty for children comprehending written language and those which simply parallel this difficulty, and has demonstrated the importance of the experimental approach in helping to identify these factors, and the need for quantifying language complexity according to firmly established criteria in order to facilitate this experimental approach.

CHAPTER III

THE DESIGN OF THE STUDY

This chapter gives details of the experimental design of the study, the selection of the language samples, the instrument of language analysis, the scoring procedure, and the statistical analysis of the data.

I. THE EXPERIMENTAL DESIGN

As the main purpose of this study was to describe the language of the authors of grade four, five and six children's basal readers, it was felt that the study had to achieve a balance between the intensive study of a limited number of readers, and a more superficial examination of a great many. In either case, given the same number of selections, the number of different authors may well have been constant, but it was felt that a balanced approach might give some insight into the similarities and differences not only among authors of different series, but also among those in the same series.

The number of selections to be studied was set at 108, to coincide with the sample size of Parts I and II of the project (Fagan, 1978; Cameron, 1979), so it was felt that six series at the three grade levels would provide a suitable compromise between breadth and depth of scope. This gave the study a basic 3 x 6 factorial design.

	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6
Grade 4	6	6	6	6	6	6
Grade 5	6	6	6	6	6	6
Grade 6	6	6	6	6	6	6

II. SELECTING THE SAMPLE

a. The Basal Reader Series

The population for this study was considered to be the basal reader series available for use in Alberta schools, specifically those readers of the series designed for use in grades four, five and six. Having decided upon six series to study, the aim was to pick those most representative of what is in use in the schools today, and what will be used in the immediate future.

Three of the series, therefore, were chosen because they were very common in elementary classrooms: the Ginn Basic Readers (Series No. 6), the Nelson Young Canada Readers (Series No. 3), and the Holt, Rinehart and Winston Sounds of Language (Series No. 2). The other three series were at the time of the analysis, being piloted for the revised list of recommended texts by Alberta Education. These were the Gage Strategies for Language Arts (Series No. 1), the Nelson Language Development Reading Program (Series No. 3), and the Ginn Starting Points in Reading (Series No. 5). Each of these has since been adopted for recommendation, and each will no doubt become increasingly common in the future. It was felt that these six series provided a representative sample of the past, present and future reading series used in the Division II classrooms of Alberta schools. The series chosen span a period of fifteen years, and their use will no doubt be extended for considerably longer.

b. The Language Selections

As mentioned above, 108 selections were studied in

order to facilitate comparisons between the present study and the two preceding parts of the project (Fagan, 1978; Cameron, 1979) which studied 108 samples of children's language. In the present study the following procedure was used to select the sample:

1. Each volume was divided according to its number of pages into six equal sections.
2. A table of random numbers was used to select one page from each section.
3. If the page selected was from a suitable passage (see below), then the beginning of that passage was taken as the sample selection. If the page selected was from an unsuitable item, then the next suitable passage was chosen, or if the randomly chosen page was too close to the end of the section, the preceding suitable passage was chosen.
4. A passage was considered suitable for analysis if it was a piece of prose narrative, for that was the nature of the language samples collected from the children in the Fagan and Cameron studies. This type of writing constituted by far the vast majority of the written language of the basal readers.
5. The beginning of each passage was chosen in order that contextual analysis of referential and logical information and of staging could be applied.
6. Each passage was at least thirty T-units in length for that was close to the mean length of the language samples obtained in Parts I and II of the project. The cut-off point was the first logical break in the narrative after

thirty T-units. This point always occurred at the end of a sentence, and most often at the end of a paragraph.

Complete lists of the series used, their authors and publishers, and of the location of the selected passages are given in Appendices C and D.

III. THE CHILDREN'S LANGUAGE (Parts I, II)

The study and analysis of children's language was the primary focus of the other two studies which comprise the Language Research Project, so a detailed account of the sample, the sampling procedure and the data collection may be found in Fagan (1978), Chapter IV, and in Cameron (1979), Chapter III. Only a summarised version is presented here, for the primary focus of the present study is the description of the authors' language.

The sample for the children's language was chosen from four schools within the Edmonton Public School System. From a possible 680 nine, ten and eleven year olds, 108 were eventually chosen according to the following criteria: date of birth, verbal I.Q. score, reading achievement score, English as a first language, absence of severe speech, visual, hearing or emotional disorders, and parental permission. From the 250 children who fulfilled the above criteria, twenty-three boys and twenty-three girls at each age level were randomly selected for the data collection. Five of these children did not produce enough written language to allow a detailed analysis, and from the remaining 133, eighteen boys and eighteen girls at each age level were randomly selected for the full analysis, as shown below.

	Boys	Girls
9 years	18	18
10 years	18	18
11 years	18	18

The stimuli chosen for the data collection were two films, The Stowaway and The Huntsman, both of which had boys of about ten or eleven years old as their main characters. In both films there was little dialogue, and the plot was developed through direct action, and in the case of The Stowaway through narration.

Having viewed one of the films in a small group, each student was asked either to remain in the room, and to write a letter to a friend describing all he or she could remember of the film, or the student was asked to proceed to a room where a telephone had been set up with an adult, unseen, on the other end of the line. The student was asked to tell all he or she could remember of the film to the adult who was not able to see it himself. At the completion of the first task, each student was asked to proceed to the alternative task. The telephone conversation was tape-recorded, and later transcribed verbatim. The oral and written language protocols were then analyzed by a procedure similar to that used in the analysis of the authors' language.

IV. THE INSTRUMENT OF LANGUAGE ANALYSIS

The analysis was based on a model of language currently being developed by Prideaux and colleagues (Prideaux, 1975; Baker, 1976) at the University of Alberta. The model is at this time in an inchoate state, and has been more fully

elaborated by Fagan (1978) in Part I of this project. The title of this elaborated theory is The Semantic Potential Theory of Language (Fagan, 1978, Chapter II). As Fagan points out, for the purposes of this project it is more accurate to refer to the theory as a "description" than as a "model", because it does not account for the steps through which a speaker/hearer moves in initiating and interpreting language. Rather, it provides a description of linguistic components and their relationships which should be considered within a communication framework. A schema of these components and the communication framework is shown below (p. 44).

The two most important points concerning the Semantic Potential Theory for the purposes of this study are, firstly that it rejects the notion of a "deep structure" with a syntactical form, which the transformational-generative grammarians have considered central. Secondly the description attempts to deal with the information conveyed in the utterance (though not with meaning per se, which is produced or lies in the mind of the receiver of the utterance). The instrument of language analysis was used in the study therefore, to quantify the amounts of the different types of information conveyed in the language samples, that is Contextual Information (Ic), Sentential Information (Is), Relational Information (Ir) and Denotational Information (Id). In addition, the analysis of syntactic structures, though descriptively based on transformational-generative structures (Fagan, 1969), was not concerned with notions of

COMMUNICATIVE SITUATION

Current State of Speaker's Mind

Knowledge, general and of specific situation

Motivation and Intentions

Available linguistic skills and devices

Intended Message (m)

Information Structure (Ic (Is (Ir (Id))))

Linguistic Structure of Utterance (x)

Motor Plans and Production

Utterance + Its Physical Environment (y)

Basic Sensation and Perception

Perceived Linguistic Structure (x')

Inferred Info. Structure (Ic' (Is' (Ir' (Id'))))

Construed Message (m')

Evaluation of m' (m'')

Current State of Hearer's Mind

Knowledge, general and of specific situation

Motivation and Attention

Available linguistic skills and devices

deep structure and transformations, but with the choice of particular structures by the authors to convey similar information (Fagan, 1978, pp. 37-40).

The basic unit of the utterance was taken to be the T-unit. This concept had been used before for the analysis of both the written (Hunt, 1965) and oral language (O'Donnell, Griffin and Norris, 1967) of children, and was used for those purposes in Parts I and II of the present project. To make possible a comparison between the results of those two studies and the present one, the T-unit was taken as the basic unit of the utterance, although such a measure has not before been applied to authors' language. Other measures of utterance and the specifics of the grammar which were analyzed in this study (with definitions and examples) may be found in Appendices A and B.

V. THE SCORING PROCEDURE

a. T-unit Division

Two photocopies of each selection were made and the first step in the analysis, dividing the selections into T-units, was taken. The researcher and the researcher of Part II of the project independently analyzed all of the language samples, dividing them into T-units and where appropriate into incomplete T-units. Both copies of this division were then compared and a very high degree of agreement was achieved. Where differences had occurred they were discussed individually and divisions were made to the satisfaction of both researchers. At this point the cut-off

to determine the length of each sample was made, according to the procedure outlined above. The guidelines for dividing the language into T-units are given in detail in Appendix A.

b. Sentential, Relational and Denotational Information

One passage from each cell of the 3 x 6 factorial design was chosen randomly from the six available passages, and was kept separate from the remainder. Before each step in the analysis of sentential, relational and denotational information, the two researchers repeated the procedure followed in the T-unit division, but with only this sub-set ($16\frac{2}{3}$ per cent) of the total sample: that is each of the eighteen passages was analyzed independently and the versions were then compared. This procedure enabled the researcher to become conversant with the criteria used in quantifying the various types of information, and these criteria were adapted and refined in the light of discussion of specific applications, and also in the light of their application to Parts I and II of the project. When the sub-set of samples had been analyzed and discussed, the researcher completed the analysis of the remainder.

The criteria for this part of the analysis are detailed in Appendix B, as are those for contextual information and syntactic structures.

c. Contextual Information

A similar procedure was followed for the analysis of contextual information, with the exception that two-thirds of the data were given to an assistant to analyze, while one-third was analyzed by the researcher.

d. Syntactic Structures

The researcher responsible for Part I of the project analyzed the data of all three parts of the project for syntactic structures.

VI. SCORING RELIABILITY

a. T-unit Division; Sentential, Relational and Denotational Information

The researcher was in close contact with the researchers responsible for Parts I and II of the project, and when informed of any changes made in any part of the analysis, he re-scored the language samples, if it was necessary to do so. When working jointly on the eighteen passages with the researcher of Part II of the project, 100 per cent agreement was required before the remainder of the data was scored.

b. Contextual Information

As this was the only part of the language analysis which involved independent analysis by two people, eleven of the passages were scored by both the researcher and the assistant, and the Arrington Formula for inter-scorer reliability (Feifel and Lorge, 1950) was used in computing the degree of agreement. The results on ten per cent of the passages were:

Logical Information	-	89.17 per cent
Referential Information	-	80.39 per cent
Staging	-	92.85 per cent

VII. STATISTICAL ANALYSIS

A two-way analysis of variance was applied to the 3 x 6 factorial design (grade level and series). In cases where the probability approached but did not reach the point of significance at 0.05 level, figures from an analysis of variance with the additivity assumption were referred to. This latter test can apply only when there is no interaction between the two variables of the matrix design.

In order to determine which combination of variables produced the greatest variance, a Scheffe Multiple Comparison of Main Effects was applied. As this procedure is stringent in computing levels of probability, when the Scheffe results are reported in Chapter IV, the levels of probability considered to be significant will be .1 and .05.

The means for each cell of the factorial design were also computed, and were referred to in order to detect trends in amounts of information over grade level by series, where such trends did not approach the established level of significance.

In examining the degree of correspondence between the oral and written language of nine, ten and eleven year old children and that of the authors selected in the basal readers, a one-way analysis of variance was applied. The variables for this analysis were the three language types, and grade level.

Finally, in order to determine trends across grade levels, means and standard variations were computed for the six cells at each grade level, thus providing a composite figure for amounts of information by grade level.

CHAPTER IV

RESULTS OF THE ANALYSIS OF AUTHORS' LANGUAGE

This chapter presents the results of the study according to the first three hypotheses stated in Chapter I. The null hypotheses are presented in turn, each followed by a statement of rejection or non-rejection, the presentation of the data upon which this decision was based, and a discussion of the results.

Hypothesis 1

Hypothesis 1(a)

> There will be no significant increase ($p < .05$) in the number of words per T-unit over grades four, five and six in the basal readers.

This hypothesis could not be rejected, as the probability of difference did not reach the level of significance. Table IV-1 presents the results upon which this decision is based.

TABLE IV-1

SUMMARY OF A TWO-WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE LEVEL FOR NUMBER OF WORDS PER T-UNIT

	F-ratio	Probability
Series:	.424	.831
Grade:	2.410	.096

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	11.756	13.713	13.106	4.856	18.275	10.911
2	10.082	12.490	13.025	3.497	12.904	6.764
3	11.346	13.264	13.044	5.484	4.413	4.054
4	11.869	11.619	13.800	4.470	2.497	5.683
5	12.595	11.162	11.738	6.282	10.483	2.948
6	11.970	12.208	12.963	4.760	7.523	1.438

Discussion

The mean length of the T-unit did not differ significantly over grade level, although there was an overall increase as grade level increased, as shown in Table IV-2.

TABLE IV-2

MEANS AND STANDARD DEVIATIONS OVER GRADE LEVEL FOR WORDS PER T-UNIT

GRADE	MEAN	STD. DEV.
4	11.603	2.162
5	12.409	3.060
6	12.946	2.188

It has been well documented that sentence length is a corollary of passage difficulty (Klare, 1963, 1974) in adult or authors' writing, and it might be expected that as written language is produced for more able and mature readers, then so mean sentence length would be increased. There is not, however, a simple correlation between sentence length and T-unit length, and there are no studies which have analyzed basal readers' language in terms of T-units. This makes comparison of the results of the present study rather difficult. Is greater T-unit length a sign of written language difficulty?

This question may be answered in two ways: by reference to written language studies, or by showing the relationship between T-unit length and sentence length. Hunt (1965) addressed the question in both ways. According to his study T-unit length is a more sensitive measure of language maturity, in that it takes into account two factors: clause

length and degree of subordination. In addition, the T-unit avoids considering run-on sentences joined by "and" as of greater maturity than sentences with one or two subordinate clauses. Hunt concluded that T-unit length is a more sensitive measure, and therefore shows a greater difference as language maturity increases (Hunt, 1965, p. 43).

The results of Hunt's study suggest that T-unit length should be considered a measure of language maturity. His study involved four groups, and T-unit length increased throughout, as Table IV-3 shows.

TABLE IV-3

A SUMMARY OF MEAN T-UNIT LENGTH FOR THE FOUR GROUPS INVESTIGATED BY HUNT (1965)*

GROUP	MEAN NO. OF WORDS PER T-UNIT
Grade 4	8.6
Grade 8	11.5
Grade 12	14.4
Superior Adults	20.3

* Source - Hunt (1965), page 56.

The increase in T-unit length was more marked than that of sentence length between each group of schoolchildren.

It is interesting that although the six series examined in the present study did show an increase over grade level when the results were considered together, a study of the individual series presents a very different picture (see Figure 4-1). Only two series, the Ginn Basic (No. 6) and Sounds of Language (No. 2), showed a progressive increase over the three grade levels.

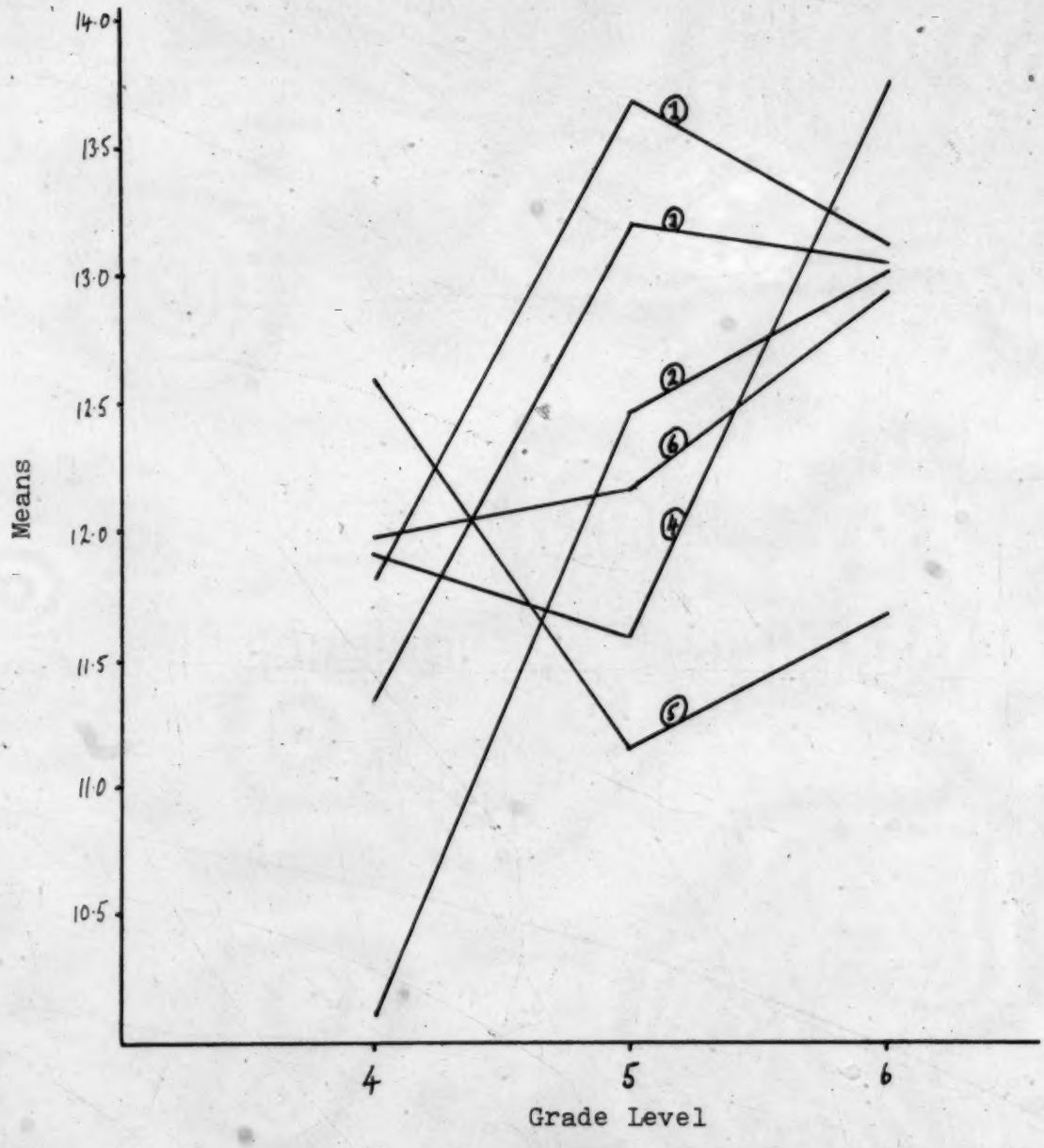


Figure 4-1 MEAN NUMBER OF WORDS PER T-UNIT OVER GRADE LEVEL BY SERIES

Two series, Gage Strategies for Language Arts (No. 1) and Young Canada Readers (No. 3) had a greater mean T-unit length at grade five than at grade six, while the Nelson Language Development (No. 4) had a greater mean at grade four than at grade five. The Ginn Starting Points in Reading (No. 5), had its greatest mean T-unit length at the grade four level.

If increasing T-unit length is a measure of written language maturity as Hunt suggests, then only two series of the six reflect progressively increasing maturity in the language presented to students at these grade levels, according to this criterion. It is interesting to note that the Ginn Basic Readers, the oldest series studied, has recently been superceded on the Alberta Education list of recommended texts by the Starting Points series, the only series in which the mean T-unit length decreased from grade four to grade six.

The overall trend, however, was to increasing T-unit length over grades four, five and six. This length, according to Hunt, may be the result of two factors; increasing subordination and greater clause length. An increase in clause length will be paralleled by an increase in the amounts of information contained in T-units, and this is examined later.

Hypothesis 1(b)

> There will be no significant ($p < .05$) increase in the number of incomplete T-units over grades four, five and six.

The hypothesis was not rejected, for the level of

probability was not significant, as shown in Table IV-4.

TABLE IV-4

SUMMARY OF A TWO WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE LEVEL FOR NUMBER OF INCOMPLETE T-UNITS

	F-ratio	Probability
Series:	4.810	.001
Grade:	.421	.658

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.833	1.167	5.000	4.968	1.367	22.400
2	1.500	.833	.167	2.300	.167	.167
3	.833	1.000	.167	1.367	1.600	.167
4	.833	.500	1.667	2.567	.700	3.067
5	.333	1.333	.167	.667	3.867	.167
6	.500	.500	.167	.300	.300	.167

TABLE IV-5

SCHEFFE COMPARISON OF MEANS FOR NUMBER OF INCOMPLETE T-UNITS BETWEEN SERIES

SERIES	1	2	3	4	5	6
1	———	**	**	*	**	**
2	———————					
3	———————————					
4	———————————————					
5	———————————————————					
6	———————————————————————					

* Significant at the .1 level.

** Significant at the .05 level.

Discussion

There was no significant increase in the occurrence of incomplete T-units over grade level, for the series as a

group. There was a highly significant difference between series, however, as indicated by Table IV-4. It can be seen from Figure 4-2 that Series 1 (Gage Strategies) had significantly more incompletes than any of the other series studied.

An examination of the incompletes identified, suggests that they have a number of different functions in authors' language:

(i) The incompletes often occur in a listing of descriptive qualities. For example:

> It was awe-inspiring. Great high ceilings. Aisles of merchandise greeting the eye.
>
> The shining ball of the full Earth floating like a smooth pearl between two vast angular mountains.

(ii) Interjections were classified as incomplete T-units in this study, if they were independent of a main or subordinate clause:

> Oh poor me! Won't someone come to save me?

(iii) Incompletes are occasionally employed to add information as if as an afterthought:

> Wallie certainly did like to take skates apart. Also dollar watches and clocks.

(iv) By far the most numerous of all the incompletes occur in dialogue:

> "When we're three or four miles out we'll drop our lines. Best cod fishing in the world around here."
>
> "Sorry. Can't gossip. Things pretty busy around here."
>
> "It's against the rules."
> "What rules?"
> "Hockey rules."

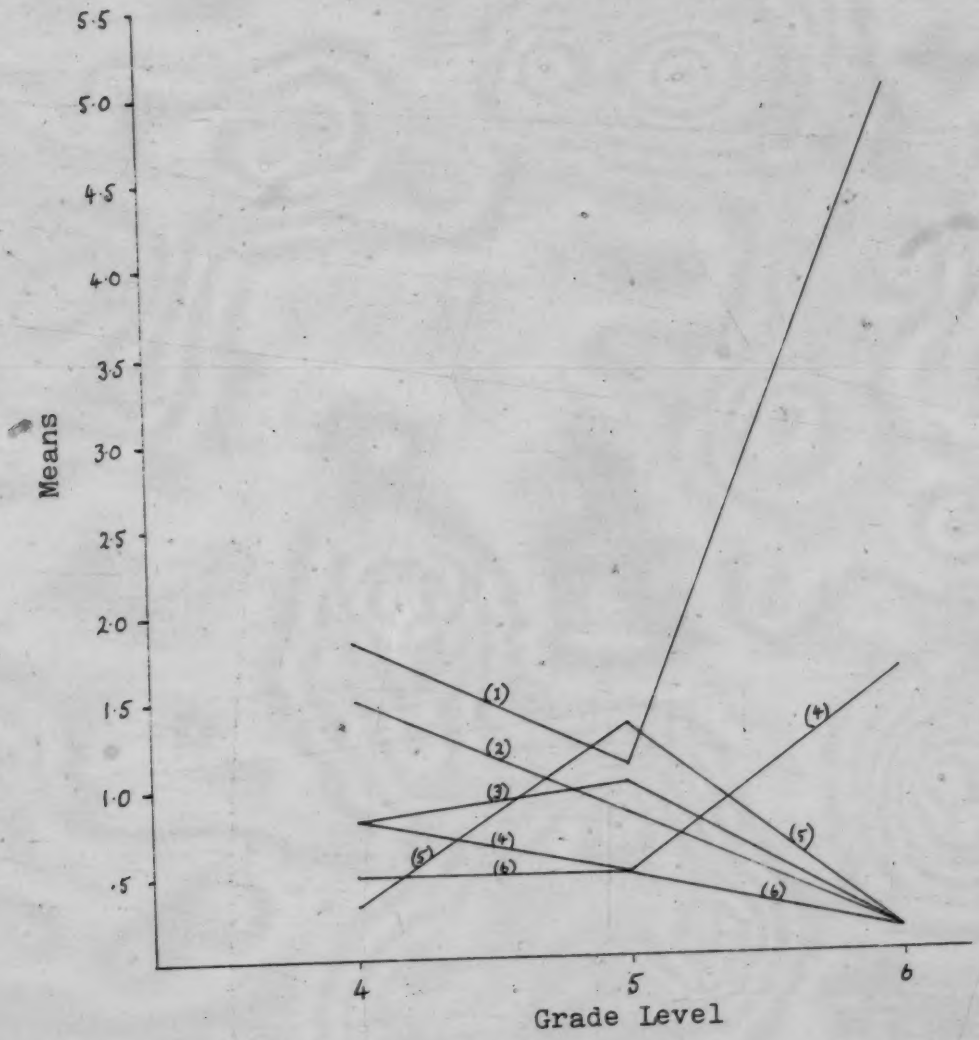


Figure 4-2 THE MEAN NUMBER OF INCOMPLETES PER SERIES OVER GRADE LEVEL

"He'd as soon crush your head in as look at you. And those claws!"

In all of the above examples, as in all those identified in the sample passages, the use of incomplete T-units appears to be a deliberate stylistic device, to add impact to a description, to add information, or to make written language more closely resemble oral language during reported dialogue. It seems then, that the incomplete may be considered an alternate syntactic structure to the T-unit.

If the use of incomplete T-units is seen as a way of making written language more closely resemble oral language, then the authors of the Gage Strategies series have striven to do this significantly more than other authors. This may be contradictory to the sentence rules still taught in most elementary classrooms.

Hypothesis 2

Hypothesis 2(a)

> There will be no significant difference in the basal reader series in amounts of Denotational Information per T-unit over grades four, five and six.

The hypothesis was not rejected for total Denotational Information, nor for the following specific types of Denotational Information: nouns, adjectives, negatives, intensifiers, quantifiers, determiners, verbs, adverbs, adverb clauses of time, place, manner and condition, modals, connectives or expletives, and the sub-totals of noun and verb Denotational Information. In none of the above, did the probability reach the level of significance.

The hypothesis was rejected for adjective phrases, adjective clauses, verbals and prepositions. The information upon which these decisions were made, is presented in Table IV-6, and Table IV-7 shows where the significant differences occurred.

TABLE IV-6

SUMMARY OF A TWO-WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE FOR DENOTATIONAL INFORMATION PER T-UNIT

VARIABLE: Nouns

	F-ratio	Probability
Series:	.485	.787
Grade:	2.192	.117

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	3.776	3.987	4.081	.508	1.164	.936
2	3.187	3.829	3.846	.697	.777	.501
3	3.443	4.226	3.778	.540	.287	.190
4	3.714	3.515	4.337	.234	.541	.522
5	3.940	3.612	3.720	.446	1.658	.301
6	3.629	4.138	4.054	.414	.154	.414

VARIABLE: Adjectives

	F-ratio	Probability
Series:	.916	.474
Grade:	.604	.548

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.719	1.125	.838	.038	.255	.105
2	.544	.698	.932	.042	.073	.038
3	.576	.857	.732	.125	.055	.035
4	.859	.958	.699	.122	.139	.040
5	1.041	.713	.707	.185	.029	.118
6	.832	.671	1.041	.212	.058	.071

TABLE IV-6 (continued)

VARIABLE: Adjective Phrase

	F-ratio	Probability
Series:	1.271	.352
Grade:	8.057	.001

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.279	.408	.454	.037	.061	.010
2	.271	.226	.365	.035	.016	.066
3	.200	.452	.560	.026	.013	.017
4	.288	.247	.407	.031	.014	.013
5	.270	.408	.369	.015	.081	.028
6	.288	.395	.499	.027	.009	.125

VARIABLE: Adjective Clause

	F-ratio	Probability
Series:	.683	.637
Grade:	3.222	.044

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.090	.050	.113	.003	.004	.008
2	.063	.059	.109	.010	.007	.006
3	.066	.070	.103	.014	.008	.006
4	.054	.071	.120	.003	.006	.006
5	.083	.099	.112	.000	.008	.004
6	.087	.123	.138	.007	.007	.008

VARIABLE: Negative

	F-ratio	Probability
Series:	1.726	.137
Grade:	.056	.945

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.032	.011	.027	.000	.000	.001
2	.033	.020	.030	.003	.001	.001
3	.011	.037	.016	.000	.001	.001
4	.000	.022	.016	.000	.001	.001
5	.063	.032	.033	.003	.006	.001
6	.037	.041	.038	.001	.000	.001

TABLE IV-6 (continued)

VARIABLE: Intensifier

	F-ratio	Probability
Series:	1.737	.134
Grade:	.014	.986

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.070	.061	.043	.002	.003	.001
2	.032	.089	.062	.001	.001	.001
3	.039	.046	.080	.002	.002	.004
4	.091	.065	.032	.007	.006	.002
5	.143	.082	.091	.014	.004	.007
6	.037	.083	.108	.001	.006	.004

VARIABLE: Quantifier

	F-ratio	Probability
Series:	1.950	.094
Grade:	1.951	.148

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.213	.155	.109	.015	.013	.006
2	.154	.204	.352	.013	.007	.015
3	.156	.176	.156	.012	.023	.004
4	.111	.124	.211	.006	.004	.005
5	.195	.195	.200	.015	.009	.001
6	.170	.184	.231	.008	.010	.012

VARIABLE: Determiner

	F-ratio	Probability
Series:	.419	.834
Grade:	1.767	.177

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.41	1.49	1.58	.319	.216	.285
2	1.29	1.31	1.56	.156	.384	.169
3	1.22	1.61	1.49	.051	.291	.110
4	1.38	1.45	1.95	.198	.146	.192
5	1.44	1.60	1.41	.269	.178	.132
6	1.53	1.52	1.47	.350	.062	.141

TABLE IV-6 (continued)

VARIABLE: Total Noun Denotational

	F-ratio	Probability
Series:	.423	.831
Grade:	2.875	.062

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	2.817	3.300	3.219	.906	1.786	.748
2	2.445	2.608	3.401	.548	1.211	.897
3	2.264	3.243	3.138	.803	.735	.285
4	2 780	2.936	3.433	.800	.890	.469
5	3.242	3.128	2.925	1.196	.800	.702
6	2.980	3.018	3.522	1.373	.326	.681

VARIABLE: Verbs

	F-ratio	Probability
Series:	.660	.654
Grade:	.999	.372

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.608	1.592	1.587	.044	.088	.053
2	1.565	1.743	1.574	.026	.094	.013
3	1.623	1.651	1.531	.029	.036	.043
4	1.619	1.628	1.739	.019	.040	.094
5	1.544	1.498	1.601	.020	.056	.008
6	1.499	1.737	1.570	.027	.009	.006

VARIABLE: Verbals

	F-ratio	Probability
Series:	.749	.589
Grade:	5.177	.007

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.224	.466	.425	.005	.081	.043
2	.305	.369	.433	.027	.021	.067
3	.248	.347	.382	.023	.039	.011
4	.393	.187	.426	.011	.010	.058
5	.245	.326	.342	.029	.011	.025
6	.298	.416	.483	.019	.026	.020

TABLE IV-6 (continued)

VARIABLE: Adverbs

	F-ratio	Probability
Series:	.305	.909
Grade:	2.870	.061

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.611	.523	.745	.059	.013	.061
2	.478	.697	.621	.054	.093	.036
3	.631	.608	.735	.032	.071	.046
4	.604	.599	.697	.032	.127	.035
5	.523	.566	.667	.033	.035	.041
6	569	.697	.674	.029	.029	.008

VARIABLE: Adverb Phrase

	F-ratio	Probability
Series:	.851	.571
Grade:	.356	.702

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.745	.925	.692	.077	.101	.084
2	.674	.555	.810	.077	.089	.157
3	.738	.915	.776	.039	.167	.015
4	.798	.781	.975	.098	.120	.033
5	.783	.724	.782	.035	.096	.032
6	.805	.861	.843	.088	.053	.099

VARIABLE: Adverb Clause Time

	F-ratio	Probability
Series:	.633	.675
Grade:	.494	.612

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.070	.116	.075	.001	.009	.002
2	.068	.112	.103	.002	.006	.001
3	.102	.124	.087	.005	.006	.006
4	.112	.064	.125	.006	.002	.003
5	.089	.083	.094	.003	.002	.011
6	.105	.133	.119	.002	.002	.003

TABLE IV-6 (continued)

VARIABLE: Adverb Clause Condition

	F-ratio	Probability
Series:	.271	.928
Grade:	2.689	.073

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.065	.098	.038	.002	.011	.002
2	.048	.097	.066	.004	.010	.002
3	.044	.067	.059	.007	.002	.001
4	.044	.092	.071	.003	.004	.003
5	.031	.043	.087	.001	.002	.008
6	.042	066	.065	.001	.001	.003

VARIABLE: Negative

	F-ratio	Probability
Series:	1.082	.376
Grade:	.429	.652

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.124	.204	.135	.008	.014	.010
2	.112	.129	.103	.008	.008	.004
3	.188	.105	.160	.003	.006	.012
4	.146	.077	.076	.007	.002	.001
5	.120	.076	.177	.003	.007	.025
6	.133	.125	.143	.004	.007	.008

VARIABLE: Modal

	F-ratio	Probability
Series:	.579	.716
Grade:	1.003	.371

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.217	.215	.174	.026	.006	.024
2	.152	.334	.197	.011	.046	.014
3	.232	.236	.252	.004	.031	.016
4	.236	.151	.163	.028	.005	.009
5	.256	.164	.152	.010	.022	.018
6	.238	.274	.188	.023	.014	.013

TABLE IV-6 (continued)

VARIABLE: Total Verb Denotational

	F-ratio	Probability
Series:	.678	.641
Grade:	1.501	.228

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	2.110	2.615	2.343	.300	.826	.831
2	1.877	2.285	2.361	.217	.919	.498
3	2.227	2.503	2.366	.227	.662	.244
4	2.398	1.912	2.525	.212	.562	.460
5	2.104	2.025	2.339	.134	.259	.248
6	2.244	2.634	2.547	.243	.289	.050

VARIABLE: Prepositions

	F-ratio	Probability
Series:	1.290	.275
Grade:	4.204	.018

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.006	1.290	1.167	.114	.336	.133
2	.813	.833	1.106	.108	.117	.335
3	.918	1.361	1.319	.100	.089	.054
4	.973	.953	1.329	.135	.156	.086
5	1.037	1.100	1.139	.100	.320	.089
6	1.020	1.276	1.310	.156	.057	.348

VARIABLE: Connectives

	F-ratio	Probability
Series:	.413	.838
Grade:	.060	.941

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.829	.984	.904	.121	.306	.237
2	.727	.932	.874	.129	.411	.036
3	.915	.850	.992	.072	.221	.176
4	.797	.807	.886	.072	.121	.166
5	1.073	.771	.790	.178	.081	.037
6	.700	.825	.771	.525	.039	.032

TABLE IV-6 (continued)

VARIABLE: Expletives

	F-ratio	Probability
Series:	1.772	.127
Grade:	.814	.446

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.026	.039	.058	.001	.002	.002
2	.113	.147	.040	.013	.012	.003
3	.094	.095	.091	.014	.001	.012
4	.060	.054	.021	.004	.006	.002
5	.083	.037	.043	.004	.001	.001
6	.048	.047	.048	.005	.001	.003

VARIABLE: Total Prepositions, Connectives, Expletives

	F-ratio	Probability
Series:	.508	.768
Grade:	1.624	.203

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.861	2.312	2.129	.354	1.252	.612
2	1.653	1.913	2.020	.371	.723	.494
3	1.927	2.220	2.408	.266	.282	.384
4	1.831	1.815	2.236	.253	.411	.415
5	2.193	1.907	1.972	.454	.660	.189
6	1.768	2.147	2.129	.280	.143	.354

VARIABLE: Grand Total - All Denotational Information

	F-ratio	Probability
Series:	.352	.880
Grade:	2.387	.097

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	12.183	13.741	13.360	6.070	19.509	12.789
2	10.749	12.377	13.202	6.502	15.683	8.308
3	11.484	13.843	13.221	6.203	6.521	3.780
4	12.343	11.805	14.270	4.355	9.427	6.429
5	13.023	12.170	12.558	7.279	12.157	3.394
6	12.122	13.673	13.821	6.191	3.075	4.722

TABLE IV-7

SCHEFFE COMPARISON OF MEANS FOR DENOTATIONAL INFORMATION OVER GRADE LEVELS

Variable	4 - 5	4 - 6	5 - 6
Adjective Phrase		**	
Adjective Clause		*	
Verbal		**	
Preposition		**	

* Significant at the .1 level.
** Significant at the .05 level.

Discussion

There was an increase over the grade levels for total denotational information, but this trend did not reach the level of significance ($p = .097$). As the increase in the number of words per T-unit was not significant, then this result was to be expected, for an increase in denotational information by definition, entails an increase in written information.

The specific items which did increase significantly did so between grades four and six, but in each case the trend was consistent through the three grades (see Figure 4-3). It would appear then, that these items are controlled by authors, who are writing for specific grade levels, or by editors in choosing such writing. If this is a deliberate action, then presumably these items are perceived as important factors of complexity.

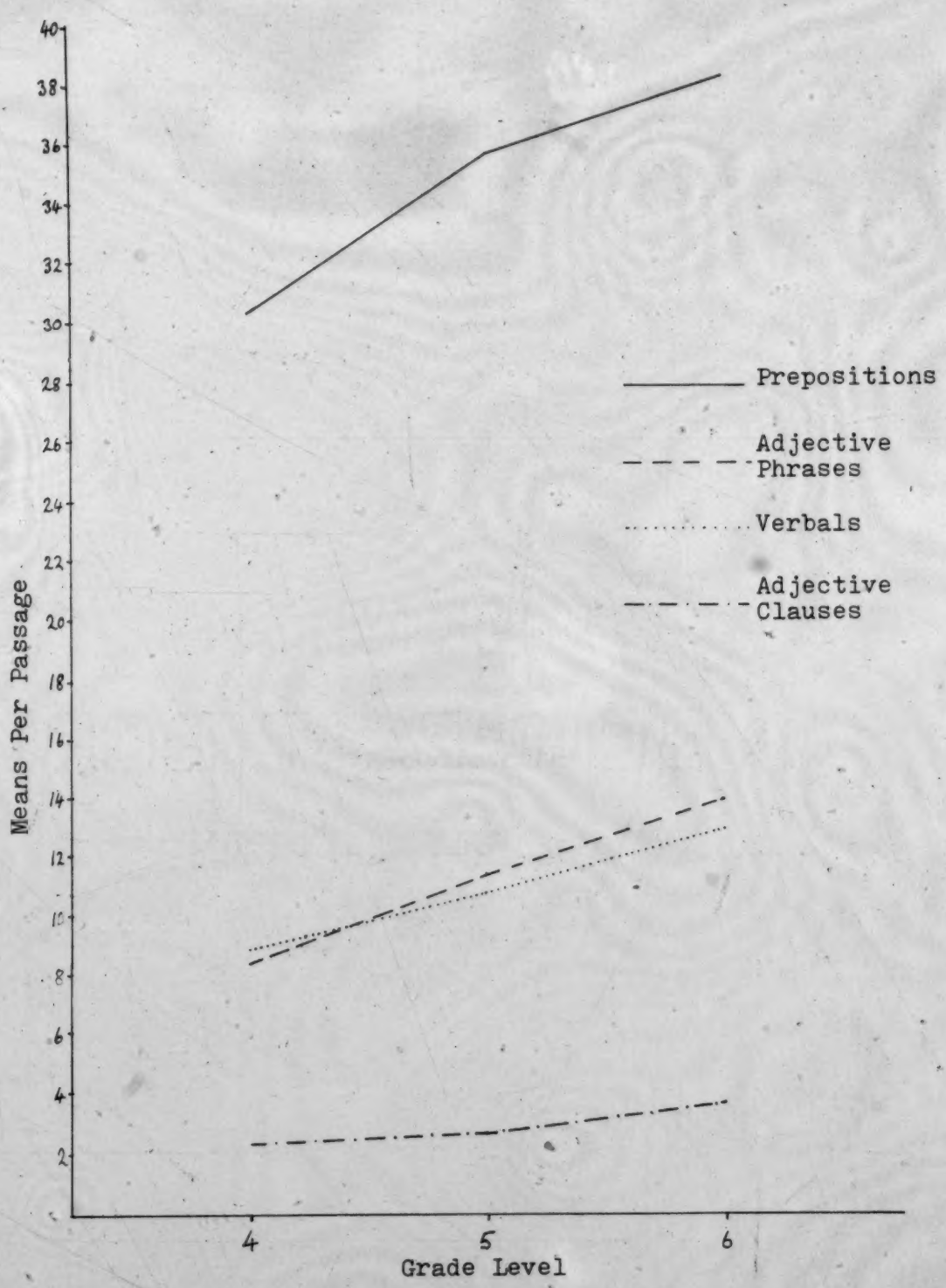


Figure 4-3 DENOTATIONAL INFORMATION WHICH INCREASED SIGNIFICANTLY OVER GRADE LEVEL

This may well be the case for prepositions, which by definition are associated with nouns, and are therefore closely correlated with the number of prepositional phrases. This is a popular criterion for determining reading difficulty (e.g. Gray and Leary, 1935; Lorge, 1939; Coleman, 1965), and is easily manipulated. It is also a way of increasing clause length, and thereby T-unit length according to Hunt. That is to say, the extra information must be added within the T-unit rather than by adding extra T-units.

In this study, the prepositional phrases were subdivided in the analysis into adjective and adverb phrases, but they were accompanied by other constructions within these categories (see Appendix B). The vast majority of adjective phrases were of the type: "The quavering, sorrowful hunting call of a wolf." In other words, they were prepositional phrases. A smaller proportion of the adverb phrases were of this type, and this could explain why adverb phrases did not increase significantly over grade level. Authors and editors may pay more attention to prepositional phrases than to other phrases, and this is reflected in the significant increase in both prepositions and adjective phrases.

The incidence of adjective clauses was also significantly greater at grade six than at grade four, although the highest mean was only .138 per T-unit, or roughly one in fourteen. Again, it is possible only to speculate that this method of conveying information is seen as something to be controlled in authors' language, although it seems inconsistent that adjective clauses should be controlled, while adverb clauses

apparently are not. Extra information associated with the noun may be perceived as a more difficult or mature aspect of language than that associated with the verb.

The incidence of verbals also increased significantly. This type of information includes both the present and past participles when not accompanied by auxiliary verbs. These forms may be used as adjectives or nouns, for example:

> The drift ice prevents air-hole hunting for seals.
> Boxer sat humped against the back wall of his cage.
> Josef had a very tender and understanding heart.

Although adjectives and nouns showed no significant increase, verbals, which have largely the same function, did. This, again, may be perceived by authors as a more mature use of language, in which words normally classified as verbs take on different roles within the sentence.

The aspect which was perhaps most notable about the changes in amounts of Denotational Information, was not the types which increased significantly, but those which did not. In addition to those elements already mentioned, nouns, quantifiers, determiners, adverb phrases, and total Denotational Information increased over grade level. Negatives with the nouns, adverb clauses of manner, and expletives were reduced as grade level increased. Adjectives, intensifiers with nouns, verbs, adverb clauses of time and condition, intensifiers with verbs, modals and connectives were more frequent in the grade five passages. Adverb clauses of place and negatives with verbs were less frequent at grade five than grade four, but were more frequent at grade six.

There appears to be little or no control over the use of these types of Denotational Information, for their frequency appears to be random. Apart from manipulation of the factors already discussed, it appears that authors and editors exert little control over the amount of Denotational Information contained in works chosen to be read by students at specific grade levels.

Hypothesis 2(b)

> There will be no significant difference in the reading series, in the amount of Relational Information per T-unit, over grades four, five and six.

This hypothesis was not rejected. In none of the elements of Relational Information did the probability reach the level of significance, as shown in Table IV-8.

Discussion

The results of the two way analysis of variance did not approach significance for Relational Information, and from the means reported in Table IV-9 there appear to be no trends. The most common elements of Relational Information were subjects, direct objects and main verbs. Indirect objects and complements occurred much less frequently. It would appear that transitive verbs are used more frequently than intransitive or copula verbs, and that although indirect objects and complements are optional and therefore manipulable elements of syntax, there is no evidence of their progressively increasing use over grade levels.

TABLE IV-8

SUMMARY OF A TWO WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE FOR RELATIONAL INFORMATION PER T-UNIT

VARIABLE: Subject

	F-ratio	Probability
Series:	.742	.593
Grade:	.195	.823

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.496	1.486	1.423	.046	.049	.053
2	1.431	1.596	1.487	.037	.059	.017
3	1.451	1.510	1.427	.039	.051	.021
4	1.533	1.433	1.584	.021	.049	.105
5	1.443	1.369	1.508	.004	.035	.016
6	1.492	1.620	1.527	.039	.021	.015

VARIABLE: Direct Object

	F-ratio	Probability
Series:	.420	.834
Grade:	1.799	.171

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.446	.475	.465	.026	.030	.018
2	.391	.566	.486	.017	.058	.032
3	.442	.602	.378	.016	.008	.010
4	.463	.506	.555	.023	.028	.018
5	.457	.397	.455	.032	.027	.020
6	.444	.508	.478	.029	.022	.011

VARIABLE: Indirect Object

	F-ratio	Probability
Series:	.904	.482
Grade:	1.050	.354

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.021	.022	.032	.001	.002	.001
2	.021	.037	.010	.000	.001	.000
3	.070	.026	.021	.002	.001	.002
4	.032	.022	.011	.000	.001	.000
5	.015	.038	.027	.000	.004	.001
6	.011	.031	.016	.000	.001	.001

TABLE IV-8 (continued)

VARIABLE: Complement

	F-ratio	Probability
Series:	.397	.850
Grade:	1.245	.292

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.130	.821	.197	.009	.004	.009
2	.160	.124	.172	.020	.007	.011
3	.109	.140	.188	.005	.007	.013
4	.114	.134	.125	.005	.008	.002
5	.141	.148	.200	.003	.009	.016
6	.155	.183	.102	.003	.007	.004

VARIABLE: Main Verb

	F-ratio	Probability
Series:	.579	.715
Grade:	.509	.603

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.608	1.592	1.587	.044	.088	.053
2	1.565	1.743	1.574	.026	.094	.013
3	1.622	1.613	1.531	.029	.042	.043
4	1.619	1.596	1.739	.019	.042	.094
5	1.544	1.498	1.601	.020	.056	.008
6	1.499	1.701	1.570	.027	.008	.006

VARIABLE: Total Relational Information

	F-ratio	Probability
Series:	.460	.805
Grade:	.732	.484

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	3.700	3.658	3.601	.325	.412	.587
2	3.568	4.065	3.730	.303	.526	.112
3	3.683	3.891	3.545	.176	.218	.164
4	3.760	3.690	4.014	.165	.278	.528
5	3.600	3.450	3.791	.041	.408	.175
6	3.600	4.043	3.693	.184	.114	.081

TABLE IV-9

MEANS AND STANDARD DEVIATIONS OVER GRADE LEVEL

FOR RELATIONAL INFORMATION

VARIABLE	GRADE	MEAN	STD. DEV.
Subject	4	46.056	4.904
	5	47.333	8.038
	6	46.583	5.520
Direct Object	4	13.806	4.606
	5	15.972	5.357
	6	14.639	4.056
Indirect Object	4	.889	.965
	5	.917	1.115
	6	.611	.826
Complement	4	4.194	2.481
	5	4.306	2.726
	6	5.111	2.989
Main Verb	4	49.250	4.781
	5	51.111	8.383
	6	49.917	5.288
Total Relational Information	4	114.139	12.790
	5	119.639	20.828
	6	116.306	14.682

Hypothesis 2(c)

There will be no significant difference in the basal reader series, in the amount of Contextual Information per T-unit over grades four, five and six for:
(i) topics and ordering
(ii) Referential Information
(iii) Logical Information.

2(c)(i) This hypothesis was rejected for the number of orders per T-unit. It was not rejected for the numbers of topics or subordinates, nor for the number of topics at any of the different orders, for in none of these did the probability reach the level of significance (Table IV-10).

TABLE IV-10

SUMMARY OF A TWO WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE FOR STAGING INFORMATION PER T-UNIT

VARIABLE: Topics

	F-ratio	Probability
Series:	.563	.728
Grade:	2.500	.088

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.446	1.551	1.427	.036	.047	.074
2	1.412	1.642	1.442	.029	.076	.028
3	1.487	1.498	1.387	.017	.062	.024
4	1.516	1.443	1.590	.034	.029	.080
5	1.438	1.497	1.439	.005	.159	.023
6	1.453	1.708	1.494	.030	.033	.006

VARIABLE: Subordinates

	F-ratio	Probability
Series:	.480	.790
Grade:	.409	.665

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.446	.490	.450	.020	.052	.062
2	.407	.566	.465	.045	.050	.012
3	.532	.466	.395	.028	.065	.013
4	.459	.443	.629	.016	.056	.071
5	.428	.364	.484	.002	.019	.025
6	.437	.536	.511	.038	.008	.007

VARIABLE: Orders

	F-ratio	Probability
Series:	1.426	.222
Grade:	3.307	.041

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.566	.633	.604	.016	.048	.038
2	.381	.473	.587	.029	.027	.035
3	.405	.551	.595	.014	.008	.020
4	.481	.454	.516	.031	.004	.007
5	.502	.553	.610	.020	.096	.022
6	.548	.489	.561	.013	.009	.036

TABLE IV-11

SCHEFFE COMPARISON OF MEANS FOR STAGING INFORMATION PER T-UNIT OVER GRADE LEVEL

VARIABLE	4 - 5	4 - 6	5 - 6
Orders		**	

** Significant at the .05 level.

2(c)(ii) This hypothesis was rejected for Synonym and Inclusion, but not for Pronoun, Repetition, Class Inclusion, Formal Repetition and Total Referential Information (see Tables IV-12 and IV-13).

2(c)(iii) This hypothesis was not rejected for Condition, Conjunction, Disjunction, Temporal Conjunction, Temporal Disjunction, Contrast, Comparison and Total Logical Information (see Table IV-14).

Discussion

As a topic was defined as information associated with a main verb, and given that the numbers of main verbs did not differ significantly over grade level, the differences among the number of topics were unlikely to be significant. There were more topics per T-unit in grade five passages, and the greatest number of verbs per T-unit occurred at grade five.

TABLE IV-12

SUMMARY OF A TWO WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE FOR REFERENTIAL INFORMATION PER T-UNIT

VARIABLE: Pronoun

	F-ratio	Probability
Series:	1.216	.308
Grade:	.742	.479

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.985	1.370	1.216	.141	.059	.139
2	1.252	1.538	1.056	.062	.132	.163
3	1.504	1.423	1.359	.072	.069	.103
4	1.477	1.240	1.454	.081	.040	.495
5	1.390	1.240	1.271	.178	.167	.137
6	1.024	1.367	1.358	.016	.010	.028

VARIABLE: Repetition

	F-ratio	Probability
Series:	2.204	.061
Grade:	2.138	.124

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.681	.598	.673	.102	.016	.030
2	.722	.888	.743	.064	.178	.084
3	.646	.689	.413	.024	.031	.039
4	.595	.721	.805	.040	.061	.068
5	.851	.590	.573	.057	.084	.086
6	.900	.988	.586	.104	.065	.036

VARIABLE: Synonym

	F-ratio	Probability
Series:	.448	.814
Grade:	7.895	.001

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.193	.229	.201	.009	.009	.008
2	.100	.292	.175	.012	.024	.007
3	.199	.269	.169	.000	.008	.014
4	.172	.193	.281	.009	.011	.012
5	.126	.196	.210	.006	.038	.005
6	.117	.329	.216	.002	.022	.013

TABLE IV-12 (continued)

VARIABLE: Class Inclusion

	F-ratio	Probability
Series:	.406	.843
Grade:	.553	.557

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.085	.049	.110	.003	.001	.037
2	.082	.067	.104	.007	.006	.007
3	.055	.037	.068	.002	.001	.007
4	.075	.033	.064	.009	.003	.005
5	.051	.106	.054	.003	.011	.004
6	.093	.056	.065	.003	.003	.003

VARIABLE: Inclusion

	F-ratio	Probability
Series:	1.238	.298
Grade:	3.855	.025

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.011	.028	.038	.000	.001	.001
2	.011	.021	.011	.000	.000	.000
3	.016	.015	.016	.001	.000	.001
4	.016	.032	.038	.000	.000	.001
5	.015	.005	.027	.000	.000	.000
6	.005	.011	.036	.000	.000	.001

VARIABLE: Formal Repetition

	F-ratio	Probability
Series:	1.756	.130
Grade:	.125	.883

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.053	.016	.026	.001	.000	.001
2	.021	.052	.032	.001	.003	.002
3	.005	.032	.027	.000	.001	.003
4	.044	.016	.060	.002	.000	.002
5	.073	.059	.055	.004	.010	.002
6	.026	030	.037	.001	.002	.001

TABLE IV-12 (continued)

VARIABLE: Total Referential Information

	F-ratio	Probability
Series:	.716	.613
Grade:	1.439	.242

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.959	2.290	2.287	.247	.211	.149
2	2.199	2.862	2.163	.071	.318	.097
3	2.447	2.465	2.087	.076	.103	.296
4	2.417	2.235	2.724	.193	.146	.843
5	2.532	2.207	2.228	.557	.750	.311
6	2.199	2.781	2.314	.219	.079	.042

TABLE IV-13

SCHEFFE COMPARISON OF MEANS FOR REFERENTIAL INFORMATION PER T-UNIT OVER GRADE LEVEL

VARIABLE	4 - 5	4 - 6	5 - 6
Synonym	**	*	
Inclusion		*	

* Significant at the .1 level.

** Significant at the .05 level.

TABLE IV-14

SUMMARY OF A TWO WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE FOR LOGICAL INFORMATION PER T-UNIT

VARIABLE: Condition

	F-ratio	Probability
Series:	.512	.767
Grade:	1.564	.215

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.076	.076	.086	.002	.010	.003
2	.064	.098	.051	.004	.009	.004
3	.076	.046	.102	.004	.002	.004
4	.055	.081	.076	.003	.003	.003
5	.037	.068	.098	.004	.002	.006
6	.037	.031	.081	.001	.001	.001

VARIABLE: Conjunction

	F-ratio	Probability
Series:	.767	.576
Grade:	.360	.698

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.482	.380	.401	.097	.044	.051
2	.366	.463	.386	.022	.145	.028
3	.411	.370	.501	.046	.029	.148
4	.363	.425	.380	.014	.059	.039
5	.547	.380	.280	.048	.021	.006
6	.302	.349	.264	.015	.021	.014

VARIABLE: Disjunction

	F-ratio	Probability
Series:	1.875	.107
Grade:	1.557	.216

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.011	.022	.038	.000	.001	.002
2	.016	.026	.015	.000	.001	.000
3	.027	.030	.037	.001	.003	.001
4	.021	.021	.016	.001	.001	.000
5	.099	.015	.021	.005	.001	.001
6	.028	.010	.015	.002	.000	.001

TABLE IV-14 (continued)

VARIABLE: Temporal Conjunction

	F-ratio	Probability
Series:	.441	.819
Grade:	.967	.384

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.070	.066	.059	.002	.003	.002
2	.058	.087	.109	.002	.002	.003
3	.081	.088	.087	.002	.003	.006
4	.085	.048	.097	.007	.002	.002
5	.062	.057	.088	.003	.002	.006
6	.063	.097	.081	.001	.003	.002

VARIABLE: Temporal Disjunction

	F-ratio	Probability
Series:	1.507	.389
Grade:	.795	.455

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.038	.050	.048	.001	.002	.001
2	.053	.065	.082	.001	.006	.001
3	.071	.053	.044	.005	.002	.002
4	.055	.049	.083	.005	.001	.006
5	.068	.027	.049	.002	.001	.002
6	073	.067	.102	.002	.009	.006

VARIABLE: Contrast

	F-ratio	Probability
Series:	1.759	.129
Grade:	.477	.622

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.075	.121	.102	.003	.008	.003
2	.058	.079	.067	.003	.003	.001
3	.129	.103	.107	.003	.006	.001
4	.012	.071	.076	.005	.003	.001
5	.120	.106	.076	.001	.003	.002
6	.069	.101	.081	.001	.005	.004

TABLE IV-14 (continued)

VARIABLE: Comparison

	F-ratio	Probability
Series:	.540	.746
Grade:	.308	.736

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.071	.122	.065	.005	.017	.002
2	.059	.031	.101	.005	.000	.005
3	.082	.074	.063	.003	.004	.003
4	.048	.043	.071	.001	.002	.005
5	.072	.065	.065	.001	.001	.002
6	.043	.081	.077	.003	.002	.005

VARIABLE: Total Logical Information

	F-ratio	Probability
Series:	.635	.674
Grade:	.077	.926

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.855	.847	.836	.119	.190	.152
2	.695	.849	.816	.088	.331	.028
3	.889	.769	.946	.066	.167	.204
4	.709	.743	.816	.053	.105	.126
5	1.026	.723	.708	.139	.059	.014
6	.647	.737	.712	.075	.029	.026

The terminology of topics and ordering may require some clarification at this point. A single topic is basically the subject of a main verb, and may be single or multiple. For example, the passage diagrammed in Figure 4-8, shows a multiple topic at its beginning: "a man and his daughter". Topics which are related to each other through Synonym, Repetition or Pronoun types of Referential Information are assigned to the same order. Again in Figure 4-8, the first three topics, "a man and his daughter", "he" and "wolves" are not related to each other in this way, and so each is assigned to a different order. The fourth topic, "man", is related by a Synonym relation to the second topic, and therefore it is assigned to the second order. The sixth and seventh topics are related by Pronoun relationships to the second topic, and they too are assigned to the second order.

The passage diagrammed in Figure 4-8 is one in which the topics are closely related. In fact, forty topics are clustered at only six orders, so that it could be said that the passage contains only six completely different topics. On the other hand Figure 4-9 diagrams a passage containing fifty topics, which by itself suggests greater variability. In addition, however, these topics are assigned to thirty-five orders. This means that there is a smaller amount of Referential relationships between the larger number of topics, and that there are many more completely different topics for the reader to deal with, in a passage with a similar number of T-units.

The number of subordinate topics, that is those which

occurred in a subordinate clause, whether before or after the main clause, did not differ greatly over grade level, and there was no order at which topics were more clustered at one grade level than another (see Figure 4-4).

The selection of language samples from the reading series was such that the first thirty or so T-units of each story were analyzed (see Chapter III), and the pattern of introducing different topics was remarkably similar over both grade level and series. First or second order topics were far more numerous than those at any subsequent order (with the possible exception of fourth order topics at the grade four level). This means that the topic most frequently referred to throughout the passage, was introduced almost immediately. If the concept of focus can be applied at discourse level as well as at sentence level, then it could be said that it occurs throughout the series analyzed: that is, the reader's attention is drawn very quickly to the main topic by its pre-eminent position in the discourse.

It should be noted that the clustering of topics of a certain order is not sequential, and that references to first or second order topics may take place throughout the passage (see for example, Figure 4-9). There is no reason to suppose, therefore, that if the whole passage had been analyzed, the pattern of organization would have been different. There would have been a greater number of orders, and more topics at most orders, but the greatest proportion of topics would still be clustered at the first or second order.

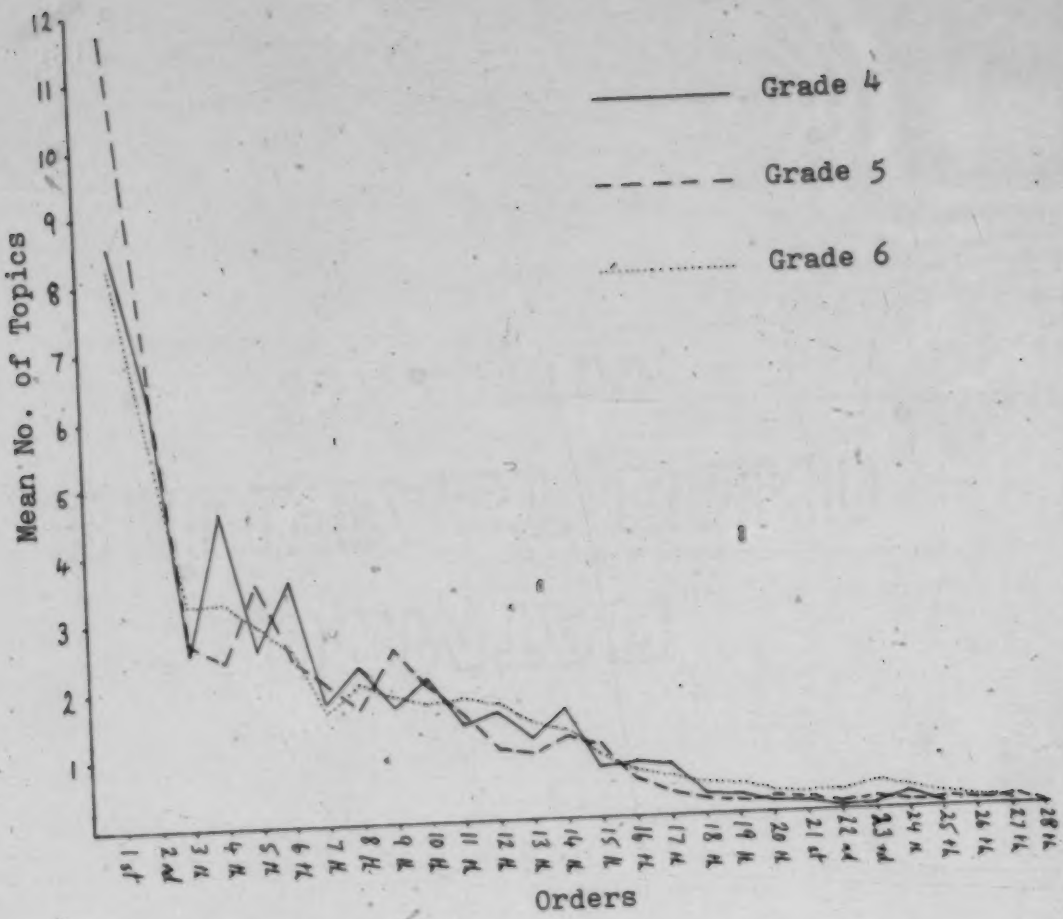


Figure 4-4 DISTRIBUTION OF TOPICS OVER ORDERS

Early introduction into a passage is no guarantee of a large number of topics, however, for a topic may be referred to only once or twice, yet introduced in the first few T-units. In the passage diagrammed in Figure 4-10, for example, the second order topic, "feeling", was referred to only once, whereas the sixth order topic "Toto's Father", was referred to six times. In other words, there was one second order topic, but six, sixth order topics.

The total number of different topics introduced throughout the passage corresponds to the number of orders, as each was assigned to a different order. As the results in Table IV-10 show, the number of orders per T-unit was significantly different over grade level, and the greatest difference was between grades four and six (Table IV-11). There was an increase in the mean number of orders, from 15.028 at grade four, to 16.583 at grade five, to 18.056 at grade six.

There were differences too, though not significant, between series in the mean number of orders per passage (see Figure 4-5). Series 2, 3 and 5 increased as grade level increased. Series 4 and 6 had fewest at grade five, and Series 1 had most at grade five. Remarkably, Series 2, 5 and 1 had exactly the same means at the grade six level. As a greater number of orders means a greater number of loosely related topics, an increase would be expected over grade level. Three of the series exhibited a consistent increase.

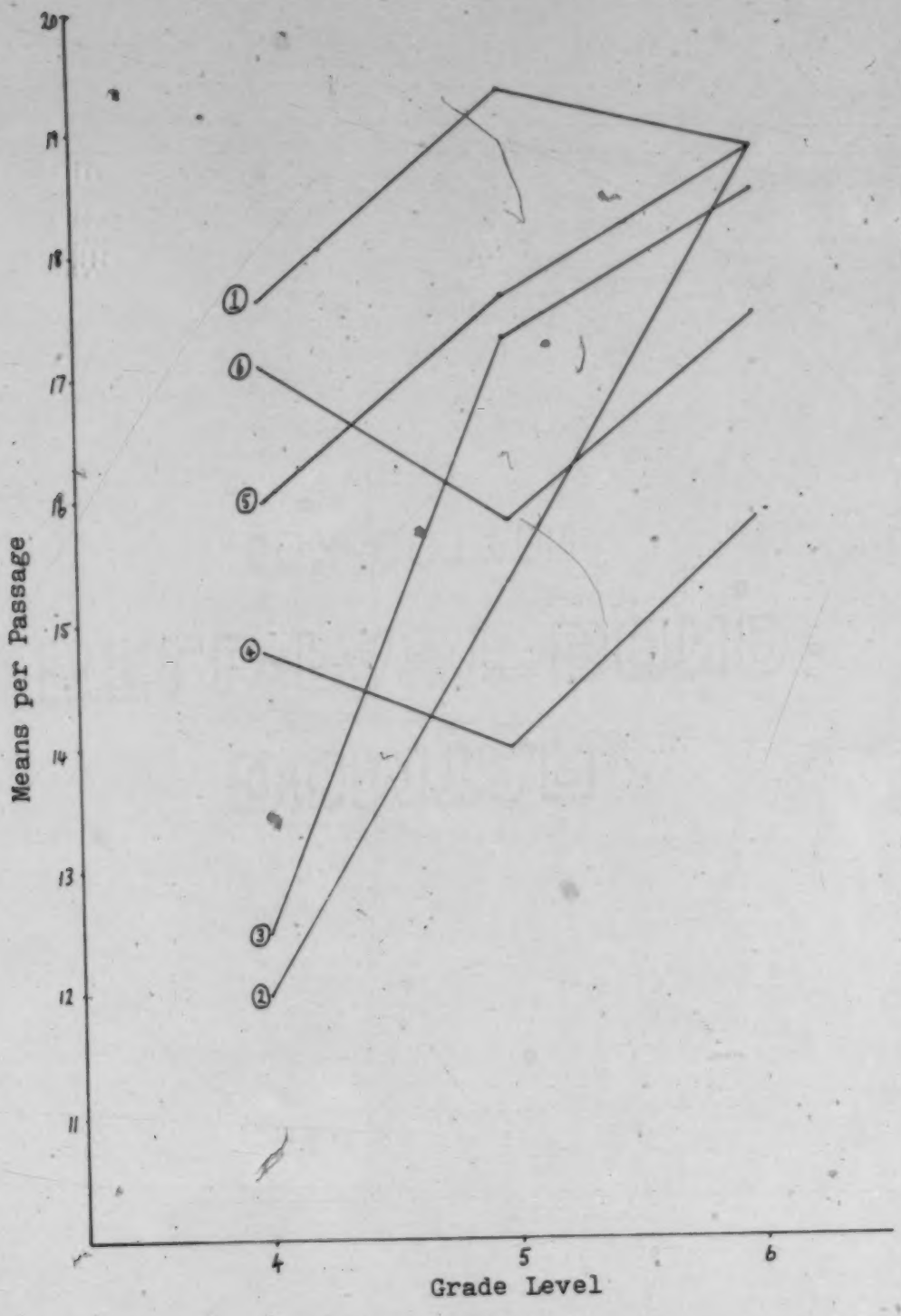


Figure 4-5 MEAN NUMBER OF ORDERS BY SERIES

Although the total number of topics in the passages did not differ significantly (the mean for grade four was 45.611, and for grade six it was 45.667), the number of orders and therefore different topics was increased. It would be expected, therefore, that the number of topics per order, or degree of elaboration, would decrease over grade level, and they did so significantly, as shown in Tables IV-15 and IV-16.

TABLE IV-15

SUMMARY OF A TWO WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE FOR NUMBER OF TOPICS PER ORDER

	F-ratio	Probability
Series:	2.033	.081
Grade:	4.380	.015

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	2.668	2.604	2.489	.488	.374	.363
2	4.229	3.712	2.683	2.321	.957	.862
3	4.010	2.766	2.453	2.297	.299	.458
4	3.440	3.212	3.207	1.222	.214	.945
5	3.080	3.280	2.497	.923	2.424	.499
6	2.712	3.566	2.960	.226	.241	1.286

TABLE IV-16

SCHEFFE COMPARISON OF MEANS FOR NUMBER OF TOPICS PER ORDER OVER GRADE LEVELS

4 - 5	4 - 6	5 - 6
	**	

** Significant at the .05 level.

It would appear that authors, in writing for grade four students, involve fewer different topics in their stories, and make more references to those which are there, while writing for grade six students involves introducing more different topics and referring to them less often. The grade four organization would appear to be more simple, as fewer orders are encountered by the reader, and the possibility of confusing topics would probably be less. It may be that the system of referring back to previously introduced topics (Referential Information) is more simple in a grade four passage with fewer orders, than in a grade six passage with more. An examination of the findings concerning Referential Information may confirm this.

The results, however, do reflect significant differences in the amount of Referential Information per T-unit over grade level (see Table IV-12), although the grade five mean was the highest of the three as Table IV-17 shows. This result should be examined in light of the fact that there were also more topics per T-unit at the grade five level. It appears that total amounts of Referential Information are more closely related to the number of topics than to the number of orders. Fewer orders do not mean less Referential Information.

In examining specific types of Referential Information, however, (see Figure 4-6), it is found that Repetitions are more common in the grade four passages than in the grade six, though not significantly so, and that Synonyms are significantly greater at the grade six level than at the grade four.

TABLE IV-17

MEANS AND STANDARD DEVIATIONS OVER GRADE LEVEL FOR REFERENTIAL INFORMATION

VARIABLE	GRADE	MEAN	STD. DEV.
Pronoun	4	39.694	10.627
	5	42.806	8.938
	6	40.083	12.312
Repetition	4	23.028	8.477
	5	23.639	9.650
	6	19.694	7.706
Synonym	4	4.722	2.501
	5	7.944	4.314
	6	6.528	3.069
Class Inclusion	4	2.278	2.219
	5	1.833	2.021
	6	2.444	3.059
Derivation	4	.722	.803
	5	.083	.363
	6	.917	.924
Inclusion	4	.389	.541
	5	.583	.640
	6	.861	.918
Formal Repetition	4	1.167	1.364
	5	1.111	1.712
	6	1.222	1.181
Total Referential Information	4	71.694	15.299
	5	78.000	18.809
	6	71.750	16.023

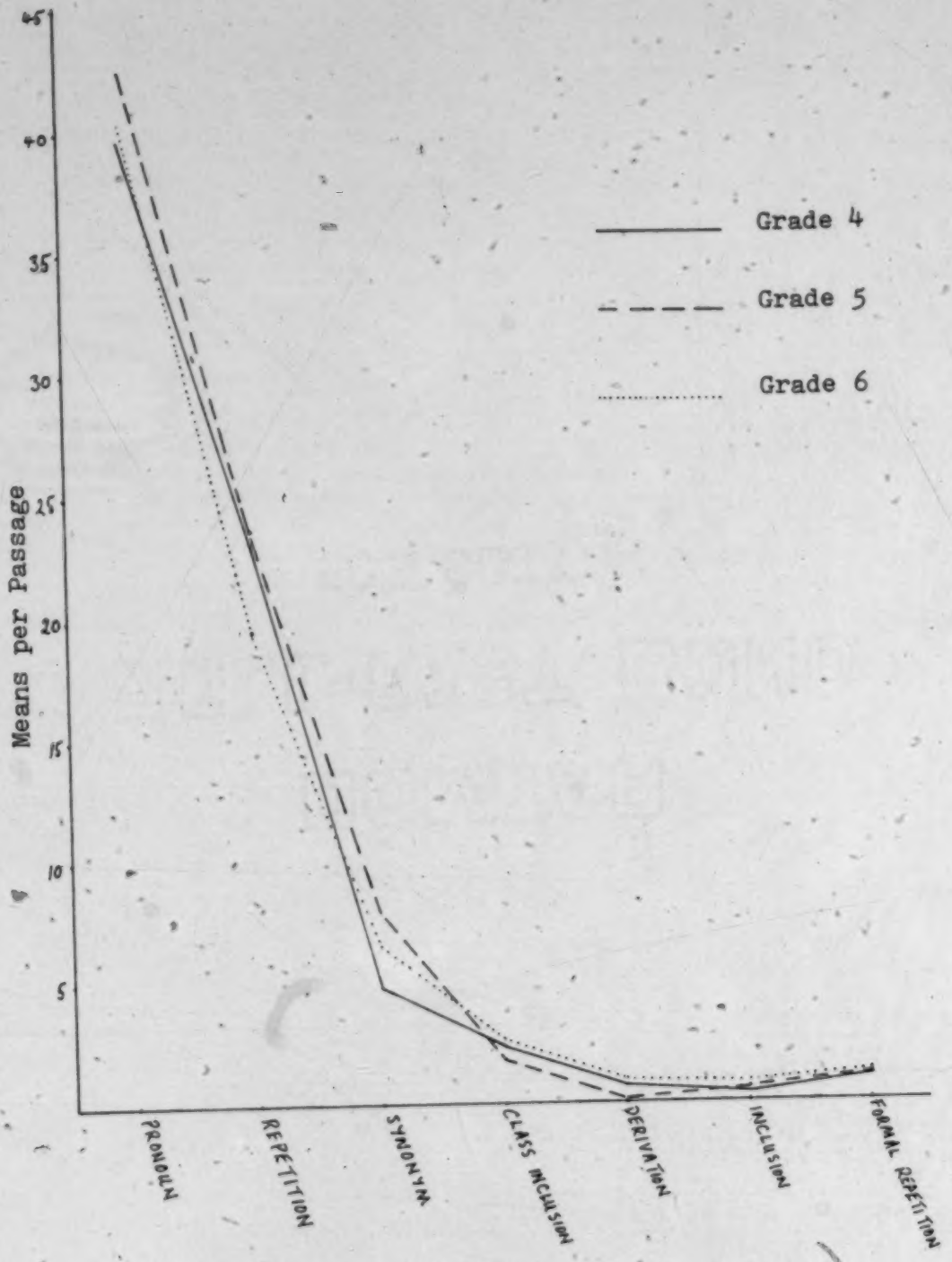


Figure 4-6 REFERENTIAL INFORMATION OVER GRADE LEVEL

Inclusion is also significantly more common in grade six passages.

It can be assumed that a synonym is a more complex form of Referential Information than a repetition, and it would seem that authors have recognized this fact to a certain extent, although still using more synonyms at grade five than at grade six. As the difference in use of the two types is cancelled out in terms of total Referential Information, the choice between Synonym and Repetition was optional and therefore manipulable. There appears to be no connection between the use of these items, and the number of orders in a passage.

There may be some connection, however, between the greater number of orders at grade six, and the more common use of Inclusion. Whereas Synonyms, Repetition and Pronoun established a connection which assigned topics to the same order, Inclusion relationships did not. In addition, there were more examples of Class Inclusion, Derivation and Formal Repetition at grade six than at grade four, and none of these relationships was between topics of the same order. One way in which the grade six passages may be more complex, therefore, is in the referential relationships between orders. Whereas at grade four the relationships are confined more to within orders. It must be noted, however, that the means for the number of Inclusions per passage for grades four and six, are only .389 and .917 respectively. By far the greatest proportion of Referential Information for all passages was embodied in the Pronoun and Repetition

categories.

The relationship between topics and Logical Information is not quite as straightforward as that with Referential Information. Many Logical relationships are not even between topics at all, whether of the same or of different orders. For example:

> Before the knights of his court would be seated at the long table in the hall, a great strife broke out between them ...

Here there are two topics, "the knights" and "a great strife", and there is a Logical relationship of Temporal Disjunction, embodied in "before". This is a time relationship between two events, only one of which, the strife, is a topic (the seating of the knights is a comment about a topic). For this reason the relationship between topics and Logical Information is difficult to plot.

In looking for differences in discourse organization over grade levels under this category, no significant results were obtained, as the information in Table IV-14 shows. The mean occurrences of Logical Information are presented in Table IV-18, and are displayed in Figure 4-7.

No results could be obtained from an analysis of variance on Spatial Connectives, as there were too few occurrences to analyze. Conjunction was by far the most common Logical relationship in all of the passages, although the grade six passages had the least. The grade six passages, however, contained the most Condition, Temporal Conjunction, Temporal Disjunction and Comparison relationships.

TABLE IV-18

MEANS AND STANDARD DEVIATIONS OVER GRADE LEVEL

FOR LOGICAL INFORMATION

VARIABLE	GRADE	MEAN	STD. DEV.
Spatial Connective	4	.639	1.004
	5	.139	.346
	6	.556	.724
Condition	4	1.778	1.565
	5	2.111	2.079
	6	2.556	1.707
Conjunction	4	12.889	6.235
	5	12.444	6.994
	6	11.500	6.656
Disjunction	4	1.056	1.433
	5	.667	.943
	6	.750	.894
Temporal Conjunction	4	2.194	1.560
	5	2.361	1.601
	6	2.694	1.697
Temporal Disjunction	4	1.861	1.512
	5	1.639	1.766
	6	2.111	1.646
Contrast	4	2.750	1.673
	5	3.056	2.081
	6	2.639	1.273
Comparison	4	1.944	1.615
	5	2.167	2.048
	6	2.306	1.792
Total Logical Information	4	25.111	9.419
	5	24.583	11.641
	6	25.111	8.790

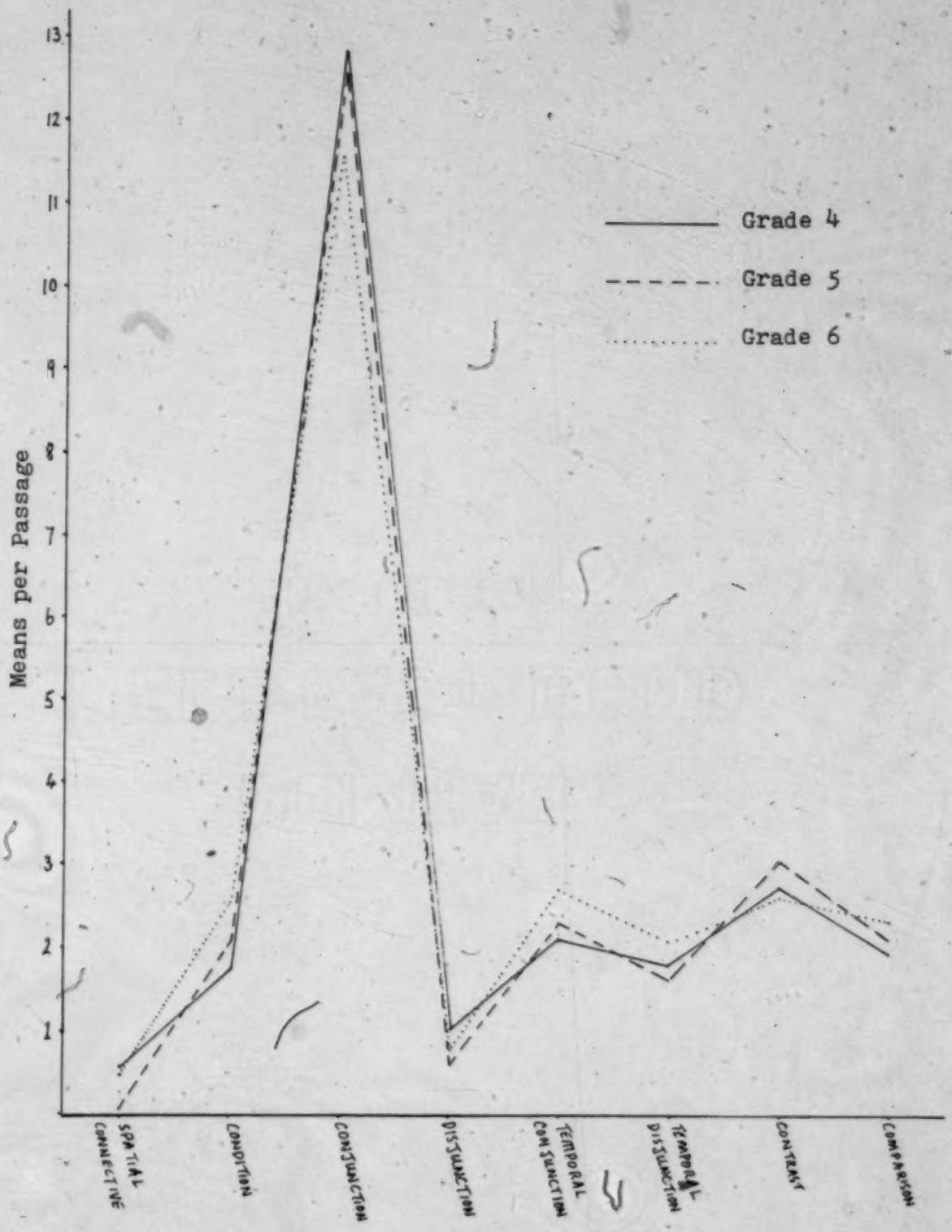


Figure 4-7 LOGICAL INFORMATION OVER GRADE LEVEL

There was a slight trend toward a greater variety of Logical relationships, then, at the grade six level.

This may be considered a trend toward more difficult language at the higher grade level, for the Conjunction category was primarily made up of the word "and", which ranked as below the twenty most difficult connectives by Robertson (1966, p. 189). Condition, on the other hand, was often signified by "of", which was ranked fourteenth in difficulty, Temporal Conjunction was often represented by "when", ranked eleventh, and Comparison was sometimes represented by "although", the most difficult connective on Robertson's test. The trend toward increased variety, seems also to be a trend toward increased difficulty, although it would be valuable to know if it is the word or the relationship which presents the difficulty.

From an analysis of the findings related to hypothesis 2(c), it appears that there are no significant differences between series, and that there are many more similarities than differences between passages at different grade levels. Those differences which were discovered, however, suggest that grade six passages have a greater range of orders or different topics, that they have more Referential Information between orders, that grade five and six passages contain significantly more synonyms and fewer repetitions than grade four passages, and that grade six passages have a greater variety of Logical relationships.

Figures 4-8, 4-9 and 4-10 diagram the organization by topics and order of three contrasting passages.

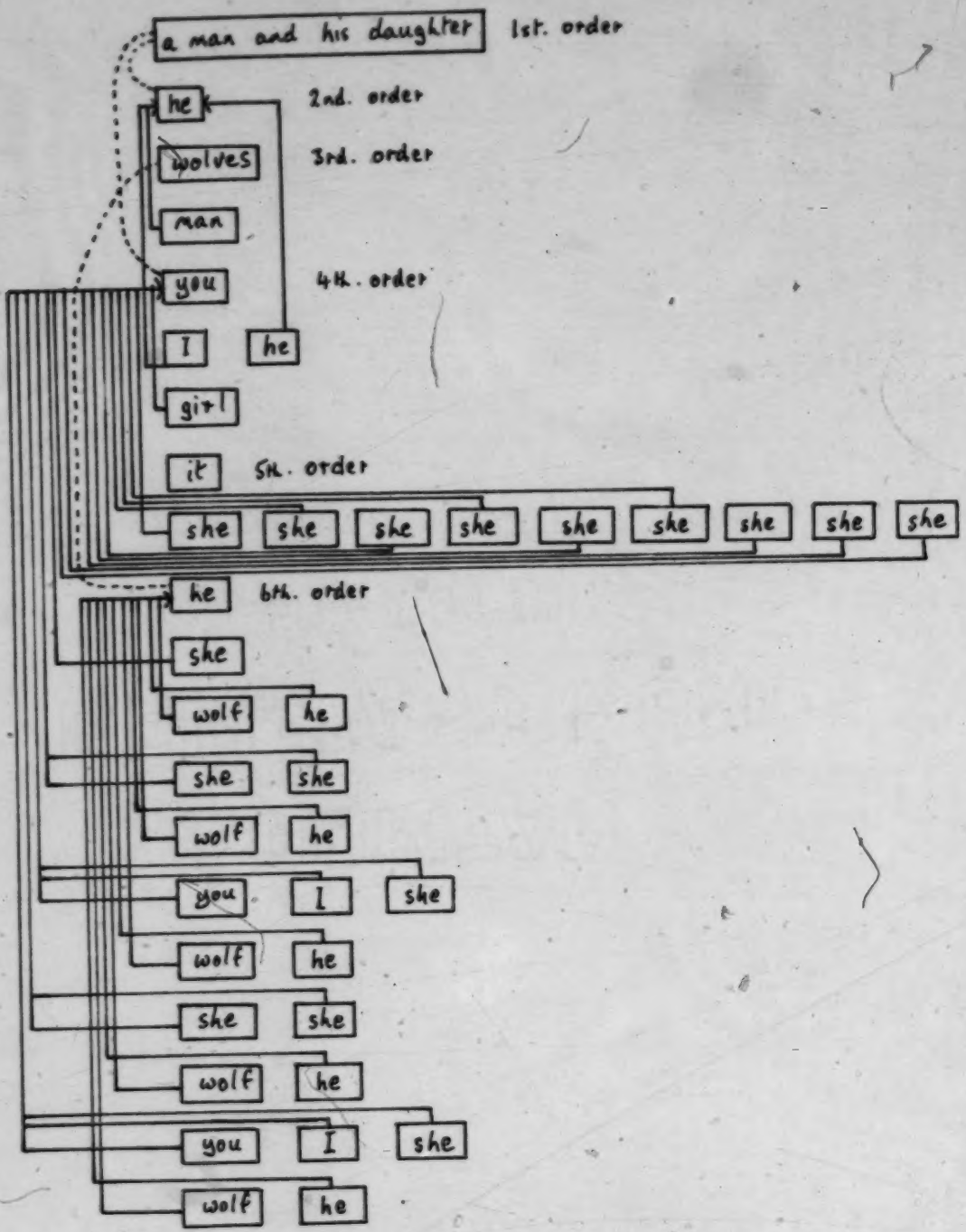


Figure 4-8 ORDER AND REFERENTIAL RELATIONSHIPS AMONG TOPICS

(Series 2, Grade 4, Passage #010)

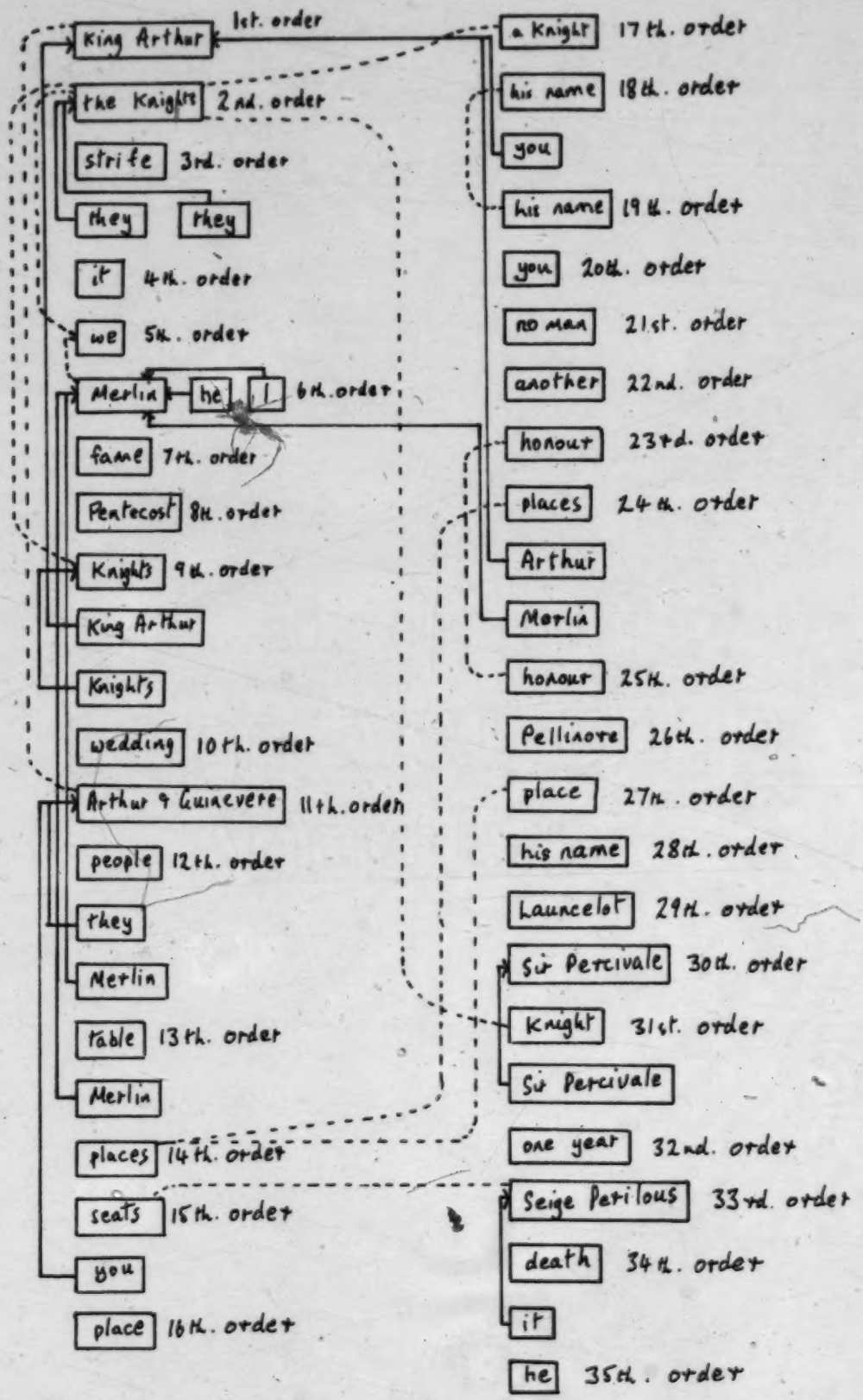


Figure 4-9 ORDER AND REFERENTIAL RELATIONSHIPS AMONG TOPICS

(Series 5, Grade 5, Passage #066)

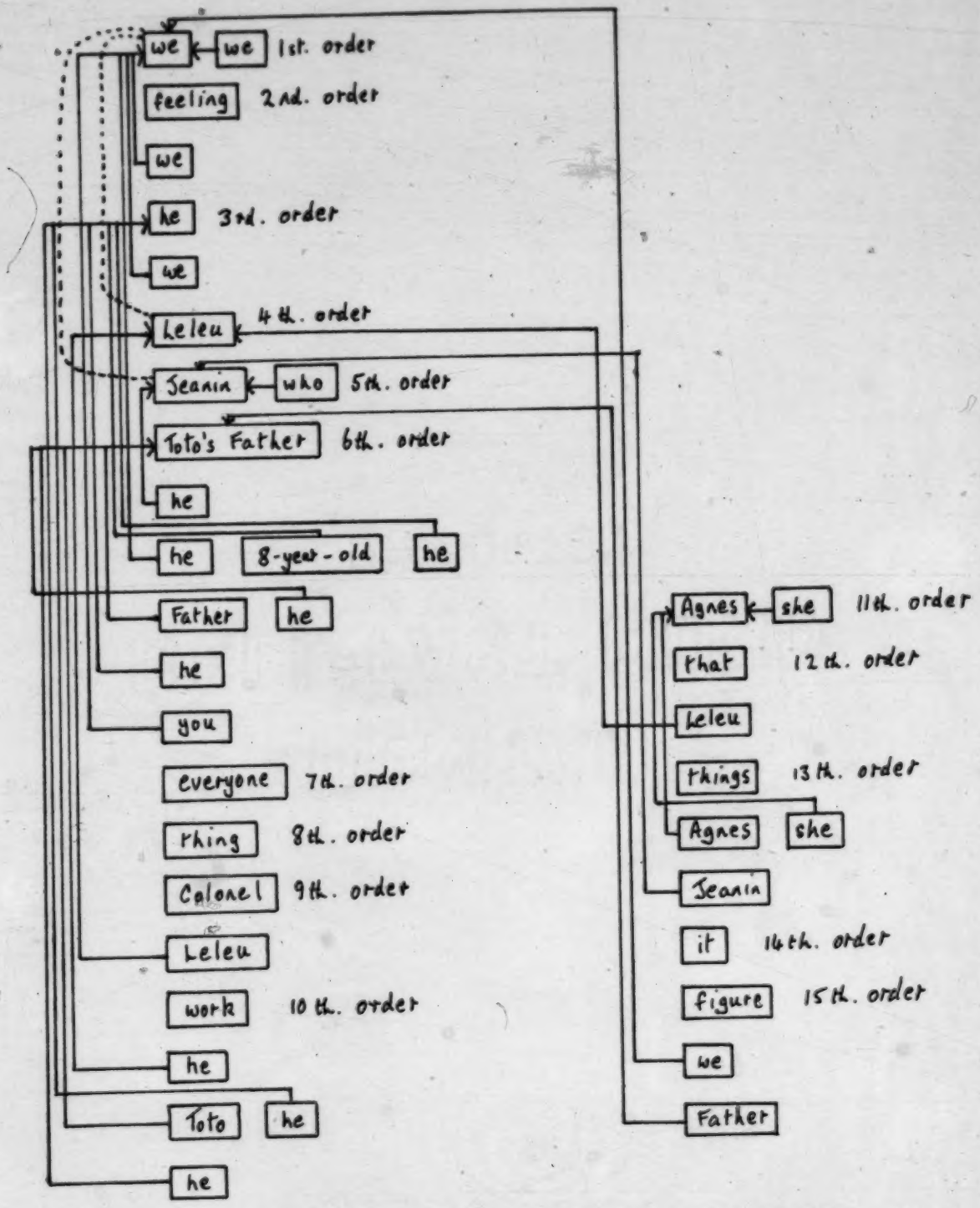


Figure 4-10 ORDER AND REFERENTIAL RELATIONSHIPS AMONG TOPICS
(Series 3, Grade 6, Passage #090)

A solid line between topics denotes either a Pronoun, Repetition or Synonym relationship, these being the criteria by which topics were assigned to the same order, and a broken line denotes Class Inclusion, Inclusion, Derivation or Formal Repetition. These are Referential relationships between orders. Topics juxtaposed horizontally are those which were assigned to the same order, and which followed sequentially in the text. This denotes an immediate elaboration of topics of a particular order.

A brief examination of the figures will establish that passage number 010 is the least complex, in terms of both number of topics and number of orders, while passage number 066 is the most complex. Passage number 090 is a compromise between the two, and is more representative of the majority of the passages studied.

A number of points are worthy of note. The passage with the fewest topics and orders also appears to have the greatest amount of Referential Information between topics. This may seem an obvious statement, for a large number of references to topics of the same order necessitates the use of such information, but it is interesting that in limiting the number of topics an author writes about, he is also providing more cues for the reader to identify these topics, or in other words, is giving the reader a greater amount of potentially redundant information. Presumably, such an organization of discourse is more easily comprehended.

In passage number 066, the reverse is true. There is a comparative lack of Referential Information, as a large

number of unrelated topics are introduced (more than one per T-unit), as can be seen by the number of orders. This organization may be more difficult to comprehend, partly due to the increased load put on the reader's memory, and partly to the nature of some of the Referential Information the passage contains. The broken lines denote relationships between orders, for example "Seige Perilous" is one of the seats mentioned as the fifteenth order topic, and so is related to this topic (seats) through Class Inclusion. The distance between the two references may lead to this relationship being missed by a reader. Possible confusion may stem from the use of the term "Knights" to refer to one group of people at the second order, and a quite distinct group at the ninth order, while "Knight" refers to two individuals at the seventeenth and thirty-first orders. These are examples of Formal Repetition, and could be confusing to a young reader.

Another point to note is that passage number 010 has a good deal of elaboration of topics of the same order, without the intervention of other topics. The fourth order topic (the girl) is mentioned as a topic nine times without interruption at one point. To the reader, "she" is a highly focussed subject of the passage. In only seven cases are topics mentioned once, before a different order topic is referred to. In contrast, in passage number 066, there are only two examples of immediate elaboration, and then only twice and three times in succession. This means that in forty-five instances a topic is mentioned once, to be replaced immediately by a topic of a different order. Again,

this may be a source of confusion.

The purpose of this contrast is not to extol the virtues of the simpler passage. Indeed, it is only speculation that the passage is easier to comprehend, although it is certainly a simpler organization according to the present criteria. It may be that the passage contains so much repetition and redundancy that it is too boring to be enjoyed by a young reader. The contrast, however, does indicate the wide variations in discourse organization of passages intended for students only one grade level apart. Passage number 090, on the other hand, seems to be a reasonable compromise. There, quite a large proportion of the topics are elaborated, and related through the three most common types of Referential Information, but still a number of new topics are introduced throughout, perhaps increasing variety and interest. From the results discussed earlier, it seemed that the overall trend was one of increasing the number of orders over grade level, and decreasing the number of topics per order. In terms of increasing the complexity of discourse organization, this appears to be the correct direction to go in.

Hypothesis 3(a)

> There will be no significant differences in the basal readers series, in the number of alternate syntactic structures per T-unit, over grades four, five and six.

This hypothesis was rejected for Relative Clause, Ing Nominative, WH, WH + Auxiliary/Verb, With Phrase, Participle, Genitive and Total Alternate Syntactic Structures. The hypothesis was not rejected for That + S subject/object, WH + S subject/object, Infinitive Object, Infinitive Object

Purpose, Adverb Expansion 1, Common Elements, (That) + S object, (That) + S object Quote, Comparative 1, Adjective and Appositive. There were insufficient data to analyze Ing Nominative Purpose, Adverb Expansion Manner + S, Adverb Expansion 2, Comparative 2 and Passive.

The data upon which these decisions were based, are presented in Table IV-19, and the locations of the significant differences are shown in Table IV-20.

Hypothesis 3(b)

> There will be no significant difference in the basal reader series, in the amount of Denotational Information per alternate syntactic structure, over grades four, five and six.

This hypothesis was rejected. (See Tables IV-21 and IV-22.)

Discussion

The incidence of those structures not analyzed was so small (often a series would have no examples in any of its six passages from one grade level), that it may be safely assumed that they are not an important factor in the syntax of authors' language at this level.

It was suggested earlier that the incomplete T-unit when used by authors, might be considered an alternate syntactic structure, chosen deliberately for any of a number of reasons, such as the attempt to make written language more closely resemble oral. The same approach may be used in examining these alternate syntactic structures. Why do authors choose, consciously or unconsciously, certain alternatives to the basic T-unit, and what effects do these choices have upon the suitability of the writing for a particular age group?

TABLE IV-19

SUMMARY OF A TWO WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE FOR SYNTACTIC INFORMATION PER T-UNIT

VARIABLE: Relative Clause

	F-ratio	Probability
Series:	.702	.623
Grade:	3.314	.040

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.090	.044	.113	.003	.003	.008
2	.063	.059	.109	.010	.007	.006
3	.066	.070	.103	.014	.008	.006
4	.054	.071	.120	.003	.006	.006
5	.083	.099	.112	.000	.008	.004
6	.087	.123	.138	.007	.007	.008

VARIABLE: That + S Subject/Object

	F-ratio	Probability
Series:	.140	.982
Grade:	.463	.631

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.016	.059	.043	.001	.001	.002
2	.032	.043	.042	.004	.001	.001
3	.061	.045	.022	.003	.005	.001
4	.042	.054	.049	.002	.004	.003
5	.047	.048	.033	.003	.001	.001
6	.032	.036	.043	.001	.001	.001

VARIABLE: WH + S Subject/Object

	F-ratio	Probability
Series:	.664	.652
Grade:	.992	.375

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.011	.011	.016	.000	.000	.000
2	.011	.041	.005	.000	.001	.000
3	.017	.014	.022	.001	.001	.001
4	.016	.032	.022	.000	.002	.001
5	.021	.011	.011	.001	.001	.000
6	.011	.016	.005	.000	.000	.000

TABLE IV-19 (continued)

VARIABLE: Infinitive Object

	F-ratio	Probability
Series:	.399	.848
Grade:	1.078	.345

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.011	.147	.962	.000	.008	.002
2	.027	.132	.011	.001	.009	.001
3	.097	.069	.547	.004	.003	.002
4	.124	.071	.864	.004	.006	.002
5	.126	.070	.587	.012	.003	.001
6	.080	.107	.012	.003	.002	.010

VARIABLE: Infinitive Object Purpose

	F-ratio	Probability
Series:	.738	.597
Grade:	..041	.960

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.048	.049	.027	.003	.003	.001
2	.085	.067	.077	.003	.003	.001
3	.080	.064	.052	.007	.005	.003
4	.059	.031	.092	.001	.002	.008
5	.047	.074	.058	.002	.001	.006
6	.058	.069	.064	.001	.004	.002

VARIABLE: Ing Nominative

	F-ratio	Probability
Series:	.645	.666
Grade:	3.657	.030

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.059	.088	.092	.001	.029	.005
2	.052	.066	.091	.004	.005	.009
3	.011	.055	.075	.001	.006	.002
4	.076	.021	.075	.001	.001	.007
5	.016	.065	.082	.001	.002	.002
6	.037	.089	.102	.001	.006	.007

TABLE IV-19 (continued)

VARIABLE: Adverb Expansion

	F-ratio	Probability
Series:	.338	.889
Grade:	1.325	.271

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.162	.230	.129	.011	.041	.005
2	.132	.214	.185	.009	.029	.010
3	.162	.191	.162	.004	.014	.007
4	.178	.167	.213	.007	.007	.014
5	.136	.137	.192	.003	.003	.027
6	.163	.235	.195	.002	.003	.005

VARIABLE: Common Elements

	F-ratio	Probability
Series:	.530	.753
Grade:	.690	.504

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.431	.406	.445	.072	.034	.042
2	.335	.342	.439	.011	.055	.047
3	.297	.411	.407	.009	.046	.097
4	.385	.368	.455	.025	.020	.043
5	.531	.264	.365	.068	.012	.019
6	.271	.365	.355	.014	.023	.029

VARIABLE: WH

	F-ratio	Probability
Series:	1.924	.098
Grade:	6.283	.003

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.022	.017	.021	.001	.000	.000
2	.006	.037	.026	.000	.001	.001
3	.010	.032	.021	.000	.001	.001
4	.027	.026	.022	.001	.001	.001
5	.005	.033	.022	.000	.002	.000
6	.021	.092	.022	.000	.003	.001

TABLE IV-19 (continued)

VARIABLE: WH Be/Verb

	F-ratio	Probability
Series:	.696	.628
Grade:	4.001	.022

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.113	.188	.191	.009	.026	.013
2	.133	.150	.095	.008	.005	.003
3	.123	.195	.182	.010	.004	.004
4	.108	.151	.131	.003	.009	.004
5	.109	.205	.158	.005	.011	.009
6	.089	.123	.203	.005	.006	.013

VARIABLE: (That) + S Object

	F-ratio	Probability
Series:	.485	.786
Grade:	.267	.766

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.049	.053	.036	.005	.004	.002
2	.028	.064	.037	.001	.004	.004
3	.044	.046	.038	.002	.003	.002
4	.060	.028	.082	.002	.003	.003
5	.051	.011	.037	.001	.000	.002
6	.027	.053	.070	.001	.003	.001

VARIABLE: That + S (Object) (Quote)

	F-ratio	Probability
Series:	.702	.624
Grade:	.972	.382

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.107	.071	.085	.004	.005	.012
2	.131	.147	.093	.034	.014	.012
3	.150	.080	.050	.007	.003	.003
4	.105	.091	.137	.006	.005	.007
5	.084	.058	.099	.008	.003	.007
6	.101	.072	.055	.018	.006	.002

TABLE IV-19 (continued)

VARIABLE: Comparative 1

	F-ratio	Probability
Series:	.654	.659
Grade:	2.407	.096

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.022	.055	.054	.001	.003	.001
2	.016	.021	.051	.001	.001	.004
3	.033	.031	.036	.001	.001	.003
4	.017	.016	.038	.001	.000	.002
5	.021	.017	.038	.001	.000	.001
6	.033	.031	.038	.002	.000	.001

VARIABLE: With Phrase

	F-ratio	Probability
Series:	2.357	.047
Grade:	.247	.782

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.022	.017	.048	.001	.001	.001
2	.011	.011	.021	.001	.000	.000
3	.022	.053	.049	.001	.001	.003
4	.027	.011	.011	.001	.000	.000
5	.040	.026	.027	.003	.001	.001
6	.027	.015	.006	.001	.000	.000

VARIABLE: Adjective

	F-ratio	Probability
Series:	1.777	.126
Grade:	.270	.764

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.404	.914	.549	.024	.144	.064
2	.389	.394	.619	.016	.041	.081
3	.293	.565	.414	.035	.032	.019
4	.969	.532	.629	1.060	.091	.067
5	.547	.434	.476	.178	.017	.075
6	.482	.352	.745	.071	.024	.067

TABLE IV-19 (continued)

VARIABLE: Appositive

	F-ratio	Probability
Series:	1.184	.323
Grade:	.804	.451

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.069	.006	.064	.003	.000	.003
2	.037	.011	.035	.003	.000	.002
3	.043	.049	.033	.001	.004	.001
4	.043	.032	.032	.001	.001	.001
5	.079	.081	.033	.003	.013	.001
6	.015	.026	.072	.000	.001	.004

VARIABLE: Participle

	F-ratio	Probability
Series:	1.685	.146
Grade:	6.006	.004

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.064	.089	.140	.001	.007	.008
2	.052	.029	.093	.004	.002	.009
3	.011	.082	.104	.001	.006	.005
4	.053	.027	.081	.002	.001	.004
5	.031	.037	.059	.001	.001	.002
6	.081	.061	.117	.015	.005	.008

VARIABLE: Genitive

	F-ratio	Probability
Series:	1.267	.285
Grade:	4.105	.020

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	.129	.224	.225	.015	.008	.019
2	.090	.154	.139	.006	.005	.015
3	.070	.292	.218	.010	.005	.016
4	.130	.081	.191	.010	.001	.010
5	.195	.156	.158	.025	.018	.007
6	.129	.199	.221	.010	.005	.035

TABLE IV-19 (continued)

VARIABLE: Total Syntactic Information

	F-ratio	Probability
Series:	.903	.483
Grade:	6.101	.003

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	1.829	2.684	2.456	.306	.572	.350
2	1.660	1.990	2.276	.136	.518	.603
3	1.667	2.336	2.103	.357	.171	.202
4	2.064	1.820	2.473	.282	.412	.194
5	2.185	1.833	2.022	.449	.278	.254
6	1.754	2.081	2.596	.156	.076	.369

TABLE IV-20

SCHEFFE COMPARISON OF MEANS FOR SYNTACTIC INFORMATION PER T-UNIT OVER GRADE LEVEL

VARIABLE	4 - 5	4 - 6	5 - 6
Relative Clause		*	
Ing Nominative		**	
WH	**		*
WH Be/Verb	**	*	
Participle		**	**
Genitive	*	**	
Total Syntactic Information	*	**	

* Significant at the .1 level.

** Significant at the .05 level.

TABLE IV-21

SUMMARY OF A TWO WAY ANALYSIS OF VARIANCE OVER SERIES AND GRADE FOR DENOTATIONAL INFORMATION PER ALTERNATE SYNTACTIC STRUCTURE

	F-ratio	Probability
Series:	1.941	.095
Grade:	3.821	.026

	MEANS			VARIANCES		
Grade:	4	5	6	4	5	6
Series:						
1	3.778	3.060	3.117	.222	.478	.173
2	3.592	3.382	3.498	.264	.125	.153
3	3.945	3.382	3.797	.176	.132	.154
4	3.447	3.780	3.308	.179	.512	.072
5	3.498	3.875	3.610	.058	.288	.088
6	3.943	3.737	3.188	.119	.144	.046

TABLE IV-22

SCHEFFE COMPARISON OF MEANS FOR DENOTATIONAL INFORMATION PER ALTERNATE SYNTACTIC STRUCTURE OVER GRADE LEVEL

4 - 5	4 - 6	5 - 6
	**	

** Significant at the .05 level.

Figure 4-11 shows the trends of the significant differences in the alternate syntactic structures, and from this can be seen that in every case there was an increase from grade four to grade six, although the WH + Auxiliary/ Verb and WH structures occurred most frequently in the grade five passages. The most common of these structures was the Genitive, an example of which is: "Then he heard his mother's slow, shuffling footsteps." There was a significant increase in the instances of this structure between grade four passages and grade five, and a further increase at grade six. Expressed in basic T-units the sentence may have been: "Then he heard footsteps. The footsteps belonged to his mother." Such a construction appears awkward perhaps, to the fluent reader, but it contains more redundant information than the Genitive structure, and would probably, therefore, be more easily comprehended by a poor reader. The use of the Genitive involves a reduction in Denotational Information which is largely redundant, and which is unnecessary for the mature reader. It seems logical, therefore, that such a structure should be used increasingly over the three grade levels studied.

The same argument may be applied to each of the alternate syntactic structures which yielded significant results. The Relative Clause can combine two basic T-units into one:

> In the morning there are big patches. The patches haven't the brightness of water.
> In the morning there are big patches which haven't the brightness of water.

Although in this case again, the second structure contains less Denotational Information, it is now a much larger T-unit, and will therefore increase the amount of Denotational

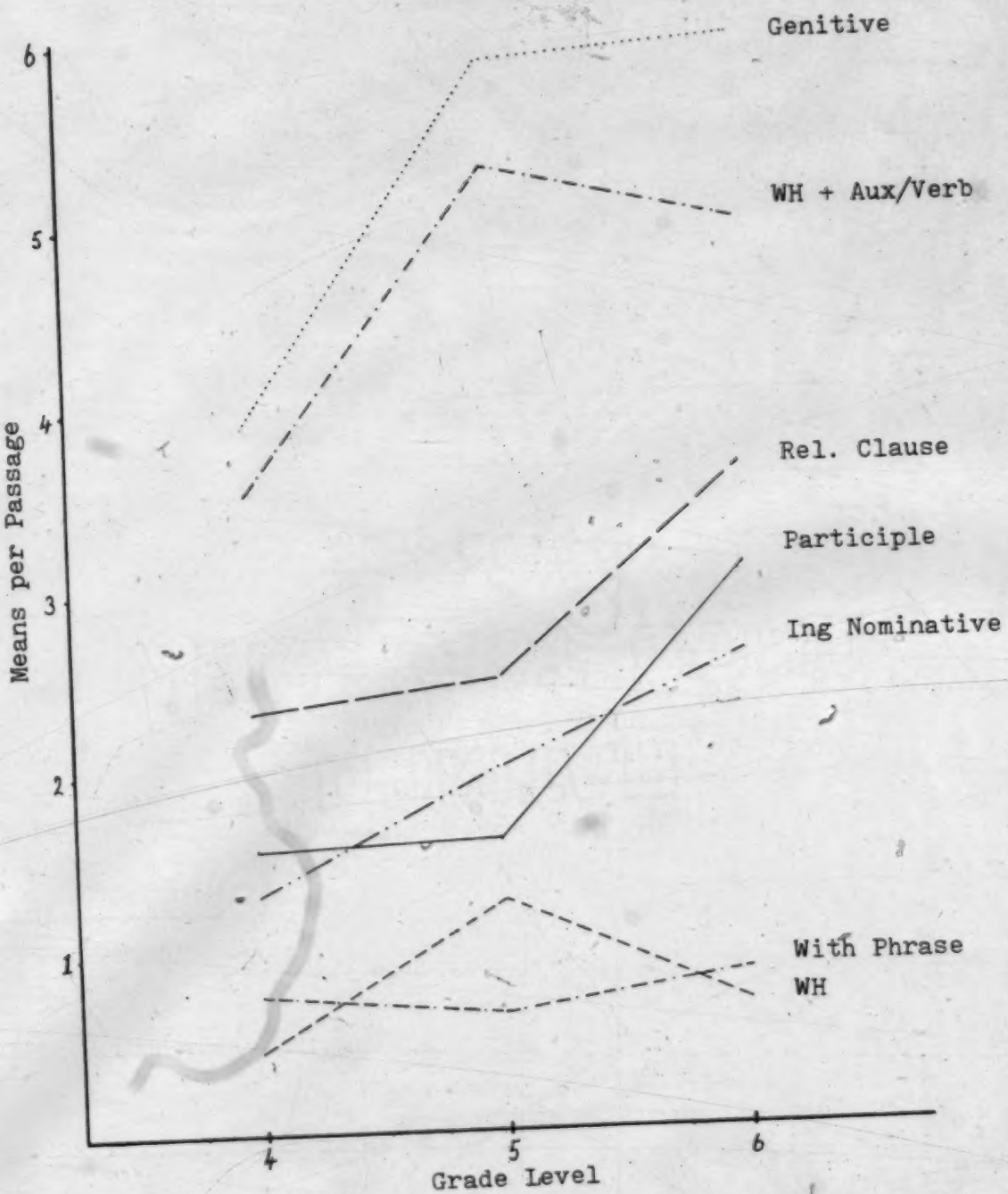


Figure 4-11 ALTERNATE SYNTACTIC STRUCTURES WHICH DIFFERED SIGNIFICANTLY OVER GRADE LEVEL

Information per T-unit. This is what Hunt (1965) referred to as increasing T-unit length through increased subordination. The Relative Clause reduces Denotational Information, while it lengthens the T-unit, thus making a more complex syntactical structure for the reader to comprehend.

Similarly with the Participle (Percy liked the cooking part best of all), the Ing Nominative (Teasing Sven was the most fun eleven year old Jerry could think of), and the With Phrase (There were cut-glass punch bowls with little cups hanging from hooks). In all of these structures, two or more basic T-units, and more Denotational Information could have been used to convey the same meaning.

The two other structures which differed significantly over grade level, go a step further. Both the WH + Auxiliary/ Verb (He was giving smooth, crisp orders to a corporal sitting behind the steering wheel of a jeep), and the WH (The store had made it possible for him to buy the two-skin choker he had seen his mother stop to dream about), involve longer, more complex T-units, but they contain even less Denotational Information than the structures discussed above: the WH words have not been written, and in the first case neither has the auxiliary verb "was".

The distinction made here is similar to that made in Transformational-Generative grammars between embedding and deletion transformations. In terms of the Semantic Potential Theory, however, basic T-units are not transformed, but alternative structures, in this case more complex and less redundant, are chosen by the author. The point made here is

that all of the structures which increased significantly, involve a longer T-unit and a decrease in Denotational Information. This is even more marked if two or more alternate structures exist within a T-unit. The Genitive example contained not only the Genitive itself (mother's), but also the Participle (shuffling footsteps). Had each of these been given as basic T-units, the contrast would have been extreme. In assuming that these alternate structures are more difficult to comprehend, Fagan (1969) may be referred to, for he found that deletion transformations were the most difficult for grade four, five and six students to comprehend.

Hypothesis 3(b) was investigated to discover if this decrease in Denotational Information per alternate syntactic structure was significant, and this was found to be so. As grade level increases, the number of alternate syntactic structures increases, the amounts of Denotational Information associated with these structures decreases, and the result is a more complex, less redundant piece of written language.

Two things should be noted, however. Firstly, the increase in alternate structures is not consistent (as Figure 4-10 demonstrates), and secondly there are far more alternate syntactic structures which occur apparently with random distribution throughout the three grade levels. There would appear to be a case for closer control of syntactic complexity.

CONCLUSIONS

1. There were very few signs of a progressive increase in language complexity over grade levels in any of the series investigated. It seems that there are no objective criteria by which authors' language is judged for assignment to a particular grade level, and that any controls exercised by the authors themselves, appear to be haphazard rather than developmental.

2. T-unit length increases only slightly over grades four, five and six, and only Series 2 and 6 reflected a progressive increase over these grade levels.

3. Incomplete T-units are used as stylistic alternatives to the basic T-units, and occur most frequently in Series 1.

4. A significant increase in Denotational Information across grade levels was limited to four variables (prepositions, adjective phrases, adjective clauses and verbals). These may be perceived by authors as factors of language complexity or difficulty.

5. Other types of Denotational Information were used in what appeared to be randomly distributed amounts.

6. Authors did not include more topics per T-unit over grade levels, but did introduce greater numbers of orders as grade level increased. The discourse organization, therefore, became more complex. Series 6 and 4 had fewest orders at the grade five level. Topics referred to most often were focussed in the passages by their position usually at the first or second order.

7. There was more Referential Information between topics

of the same order at grade four, and more between topics of different orders at grade six.

8. Pronouns and Repetitions were far more common than the other elements of Referential Information, and Synonyms were used most often in the grade six passages.

9. There was a slight trend to more variety of Logical relationships at grade six, but by far the most common item of Logical Information was the Conjunction at all three grade levels.

10. Authors employ a wide variety of alternate syntactic structures, six of which (Genitive, WH + Auxiliary/Verb, Relative Clause, Participle, Ing Nominative, With Phrase) were used significantly more often at grade six than at grade four. Each of these structures involves a decrease in amount of Denotational Information per T-unit. These structures may be perceived by authors as difficult for children.

11. The majority of syntactic structures appeared with similar frequency at all three grade levels.

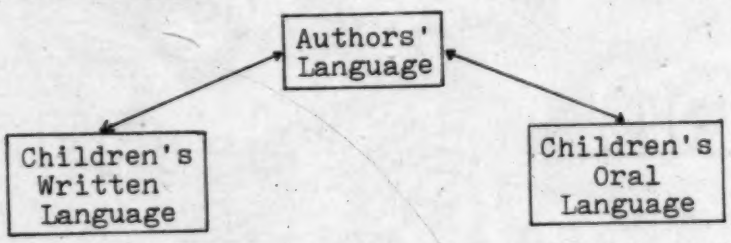
12. There were few signs of a progressive increase in language complexity over grade levels, and there were almost no measurably significant differences between series.

CHAPTER V

RESULTS OF THE COMPARISON BETWEEN AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

The results based upon hypotheses 4 and 5 are presented in this chapter. Each hypothesis is followed by a statement of the results which pertain to it, and by a discussion of these results.

It should be made clear at this point, that this study does not attempt to compare children's written language with their oral language, but only to compare these two language types individually with authors' language. The comparisons may be demonstrated as below:



The oral and written language samples (Parts I, II) were obtained from nine, ten and eleven year olds, who were in grades four, five and six respectively. In order to streamline the comparison between children's language and authors' language at the grades four, five and six levels, grade levels rather than ages will be used in referring to the children's language samples.

Hypothesis 4

> There will be no significant difference in the number of words per T-unit between authors' language and children's written and oral language.

This hypothesis was rejected for both types of children's language at all three grade levels. This decision was made

on the basis of the data presented in Table V-1.

Discussion

It was expected that there would be a hierarchy among the three language types, with authors' language having the greatest amount of words and information per T-unit. It was not clear whether the children's oral or written language would come next. In words per T-unit, the written language is the closer to that of the authors at all three grade levels (see Figure 5-1).

Hunt's explanation of increased T-unit length (1965) involved either increased subordination or increased clause length. Certainly the former was a factor in the wide differences discovered in the present comparison. As the data in Table V-2 demonstrate, the incidence of subordination was significantly greater in authors' language. The suitability of such a characteristic cannot be considered within the scope of the present study, but it is interesting to speculate on whether sentence length is a less valid measure of language difficulty than T-unit length, as Hunt implies, despite its widespread application in readability formulae (see Chapter II), and further, whether degree of subordination would prove to be an improvement over the T-unit measure. Perhaps it is not, as T-unit length also takes into account clause length.

TABLE V-1

SUMMARY OF ONE-WAY ANALYSIS OF VARIANCE BY GRADE LEVEL FOR CHILDREN'S WRITTEN AND ORAL LANGUAGE AND AUTHORS' LANGUAGE FOR NUMBER OF WORDS PER T-UNIT

	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	9.618	2.271	.000[1]	9.755	1.350	.000	10.555	1.613	.000
Oral	8.352	1.189	.000[2]	8.670	1.204	.000	8.775	1.158	.000
Authors'	11.603	2.193		12.409	3.104		12.946	2.193	

[1] Probability of difference between Authors' Language and Children's Written Language.

[2] Probability of difference between Authors' Language and Children's Oral Language.

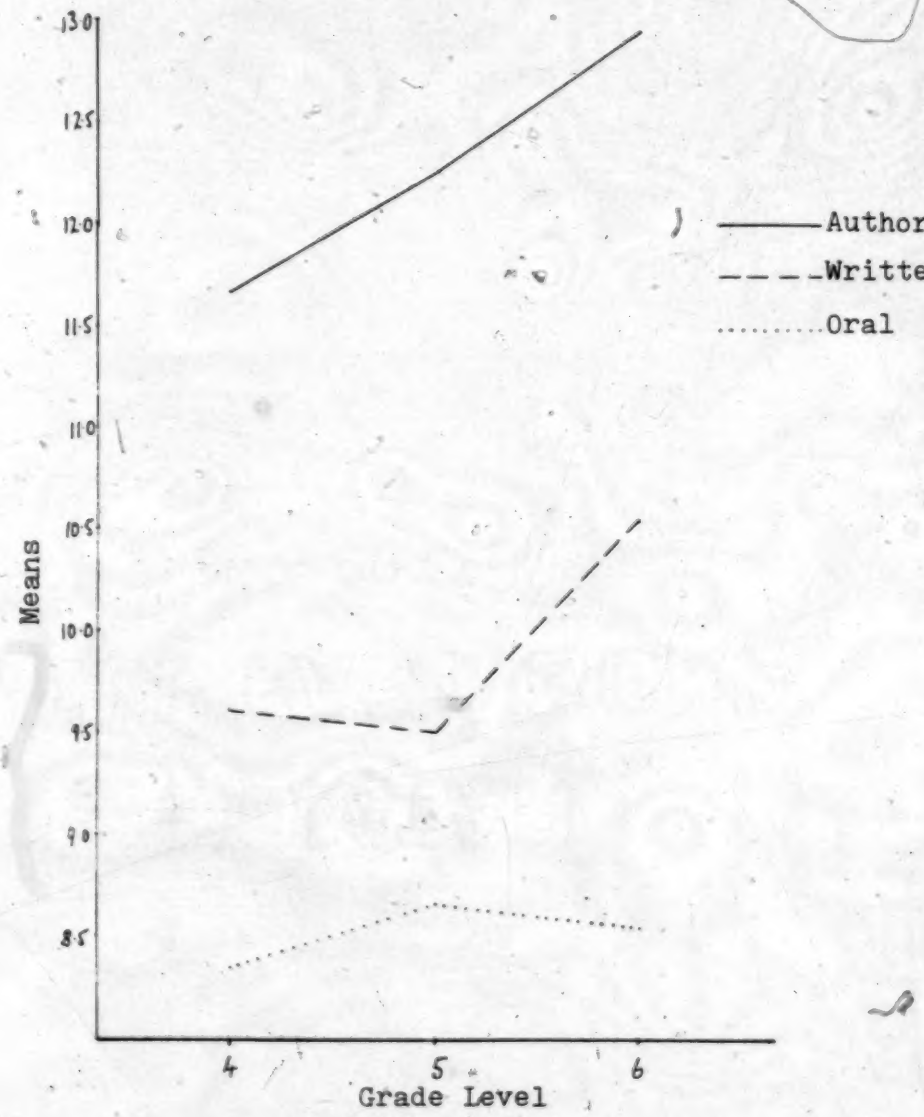


Figure 5-1 MEAN NUMBER OF WORDS PER T-UNIT FOR AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

TABLE V-2

SUMMARY OF ONE-WAY ANALYSIS OF VARIANCE BY GRADE LEVEL FOR CHILDREN'S WRITTEN AND ORAL LANGUAGE AND AUTHORS' LANGUAGE FOR NUMBER OF SUBORDINATE CLAUSES PER T-UNIT

	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.263	.196	.000[1]	.319	.142	.000	.376	.126	.004
Oral	.184	.092	.000[2]	.270	.143	.000	.227	.095	.000
Authors'	.451	.151		.478	.201		.489	.180	

[1] Probability of difference between Authors' Language and Children's Written Language.

[2] Probability of difference between Authors' Language and Children's Oral Language.

Hypothesis 5

Hypothesis 5(a)

> There will be no significant difference in the total amount of Relational Information per T-unit, between authors' language and children's written and oral language.

This hypothesis was rejected for the difference between authors' language and children's written language at the grade five level, and for the children's oral language at grades four, five and six. The hypothesis was not rejected for children's written language at grades four and six. The data upon which these decisions were based are presented in Table V-3, and Table V-4 shows where the significant differences occurred.

Discussion

There are more similarities than differences between the two written language types, as far as Relational Information goes, especially at the grade six level, although the oral language of children was significantly different throughout. The relative positions of the three language types, however, are the same as for words per T-unit, with the greatest amounts of Relational Information occurring in the authors' language, and the least in the children's oral (see Figure 5-2).

In the children's written language, there were fewer Subjects than in the authors' writing, but the number of Main Verbs used was remarkably similar, especially at grades four and six. The only likely explanation for this apparently contradictory finding, is that the children tended to use a single subject with more than one verb. For example: "He was scared. Then he ran and ran ..."

TABLE V-3

SUMMARY OF ONE-WAY ANALYSIS OF VARIANCE BY GRADE LEVEL FOR CHILDREN'S WRITTEN AND ORAL LANGUAGE AND AUTHORS' LANGUAGE FOR RELATIONAL INFORMATION PER T-UNIT

VARIABLE: Subject	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	1.277	.226	.000[1]	1.335	.138	.000	1.398	.158	.042
Oral	1.164	.099	.000[2]	1.285	.128	.000	1.215	.116	.000
Authors'	1.474	.167		1.502	.214		1.493	.189	
VARIABLE: Direct Object									
Written	.594	.198	.001	.554	.201	.524	.607	.153	.000
Oral	.468	.148	.776	.497	.121	.956	.475	.110	.987
Authors'	.440	.145		.509	.171		.470	.135	
VARIABLE: Indirect Object									
Written	.037	.042	.596	.034	.041	.878	.041	.047	.095
Oral	.032	.030	.919	.030	.037	1.000	.026	.045	.829
Authors'	.029	.032		.030	.037		.020	.027	

[1] Probability of difference between Authors' Language and Children's Written Language.

[2] Probability of difference between Authors' Language and Children's Oral Language.

TABLE V-3 (continued)

VARIABLE: Complement	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.068	.059	.000[1]	.090	.144	.195	.071	.064	.000
Oral	.039	.046	.000[2]	.080	.072	.087	.077	.079	.000
Authors'	.135	.082		.135	.084		.164	.098	
VARIABLE: Main Verb									
Written	1.539	.355	.810	1.506	.204	.050	1.602	.192	.999
Oral	1.301	.164	.000	1.361	.163	.000	1.321	.173	.000
Authors'	1.576	.160		1.624	.232		1.600	.188	
VARIABLE: Total Relational Information									
Written	3.514	.703	.514	3.499	.396	.022	3.720	.426	.996
Oral	3.021	.326	.000	3.251	.355	.000	3.127	.375	.000
Authors'	3.652	.419		3.799	.574		3.729	.509	

[1] Probability of difference between Authors' Language and Children's Written Language.

[2] Probability of difference between Authors' Language and Children's Oral Language.

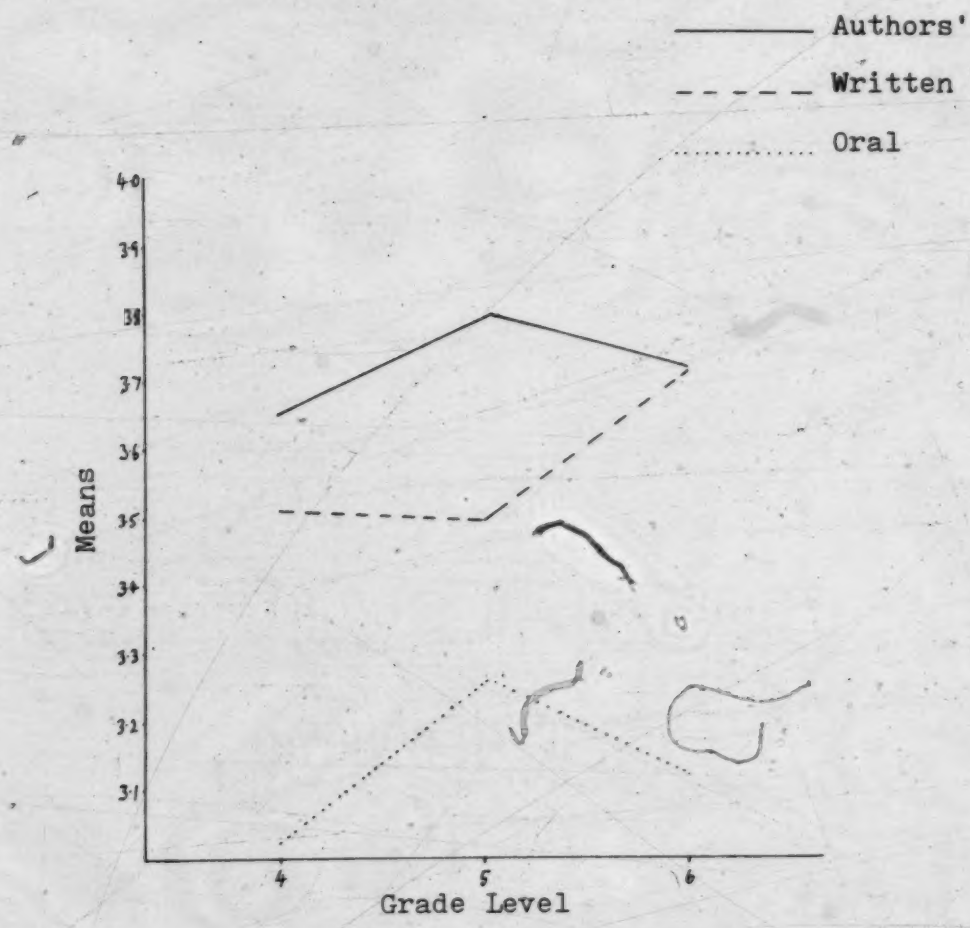


Figure 5-2 MEAN AMOUNTS PER T-UNIT OF RELATIONAL INFORMATION FOR AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

TABLE V-4

SCHEFFE COMPARISON OF MEANS FOR RELATIONAL INFORMATION PER T UNIT, BETWEEN AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

	Written			Oral		
Grade:	4	5	6	4	5	6
Subject	**	**	*	**	**	**
Direct Object	**					**
Indirect Object						
Complement	**		**	**		**
Main Verb		*		**	**	**
Total Relational		*		**	**	**

* Significant at the .05 level.

** Significant at the .001 level.

There were significantly fewer Complements in the children's writing at grades four and six, suggesting that copula and intransitive verbs are used more by authors. Even they, however, used comparatively few Complements, only three or four per thirty T-units, while the children only used about half that number.

In the children's writing, only at grade four were there significantly fewer Direct Objects, and at no grade level were there fewer Indirect Objects. It appears that authors have closely matched their language with that written by the students for whom it is intended, in terms of these two variables. This result is consistent with Strickland's (1962) finding, that the major similarity between authors' and children's language, was the common use of the Subject - Verb - Object pattern. In the present study, only at grade

four in the written language and at grade six in the oral, did significant differences occur between the numbers of Objects.

The differences between authors' language and the children's oral language occurred in much the same pattern as with their written language, with the exception of Main Verbs. The differences were greater, however, and this resulted in the sharp contrast for the total amount of Relational Information. Significantly fewer verbs occurred in the oral language, probably because of the smaller number of subordinate clauses, mentioned above.

The hierarchy of the three language types is consistent over total Relational Information, although they coincide in the incidence of individual elements. There is, however, a closer alignment between the two types of written language than was the case with T-unit length. It seems that here the written/oral distinction is more evident than that of author/child language.

Hypothesis 5(b)

> There will be no significant difference in the amount of Denotational Information per T-unit, between authors' language and children's written and oral language.

This hypothesis was rejected for both children's written and oral language at all three grade levels. The results are presented in Table V-5, and the locations of the significant differences are presented in Table V-6.

TABLE V-5

SUMMARY OF ONE WAY ANALYSIS OF VARIANCE BY GRADE LEVEL FOR CHILDREN'S WRITTEN AND ORAL LANGUAGE AND AUTHORS' LANGUAGE FOR DENOTATIONAL INFORMATION PER T-UNIT

VARIABLE: Noun	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	2.965	.610	.000[1]	3.077	.386	.000	3.170	.746	.000
Oral	2.460	.333	.000[2]	2.678	.357	.000	2.537	.380	.000
Authors'	3.615	.683		3.884	.851		3.969	.675	
VARIABLE: Adjective									
Written	.214	.126	.000	.239	.124	.000	.300	.150	.000
Oral	.097	.061	.000	.162	.105	.000	.241	.111	.000
Authors'	.762	.365		.837	.338		.825	.273	
VARIABLE: Adjective Phrase									
Written	.140	.098	.000	.152	.109	.000	.194	.163	.000
Oral	.088	.067	.000	.093	.074	.000	.110	.067	.000
Authors'	.266	.160		.356	.188		.442	.206	

[1] Probability of difference between Authors' Language and Children's Written Language.

[2] Probability of difference between Authors' Language and Children's Oral Language.

TABLE V-5 (continued)

VARIABLE: Adjective Clause	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.050	.048	.161	.062	.052	.497	.062	.039	.000
Oral	.017	.021	.000	.055	.043	.261	.027	.030	.000
Authors'	.074	.074		.079	.081		.116	.074	
VARIABLE: Negative (Noun)									
Written	.004	.011	.000	.008	.022	.012	.009	.020	.031
Oral	.005	.012	.000	.007	.015	.010	.020	.032	.625
Authors'	.029	.038		.027	.040		.027	.031	
VARIABLE: Intensifier (Noun)									
Written	.017	.023	.000	.024	.039	.000	.019	.030	.000
Oral	.008	.017	.000	.027	.042	.001	.027	.031	.000
Authors'	.069	.074		.071	.058		.069	.057	
VARIABLE: Quantifier									
Written	.190	.127	.714	.204	.116	.500	.209	.146	.999
Oral	.194	.129	.646	.168	.114	.985	.184	.091	.646
Authors'	.167	.104		.173	.101		.210	.109	

TABLE V-5 (continued)

VARIABLE: Determiner	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	1.399	.395	.972	1.379	.310	.329	1.481	.351	.504
Oral	.997	.191	.000	1.008	.202	.000	.959	.235	.000
Authors'	1.378	.450		1.496	.439		1.576	.423	
VARIABLE: Total Noun Denot.									
Written	2.014	.557	.000	2.067	.431	.000	2.273	.556	.000
Oral	1.405	.291	.000	1.521	.327	.000	1.561	.315	.000
Authors'	2.755	.955		3.039	.936		3.273	.763	
VARIABLE: Verb									
Written	1.547	.360	.879	1.516	.202	.034	1.620	.222	.915
Oral	1.301	.164	.000	1.361	.163	.000	1.322	.174	.000
Authors'	1.576	.160		1.641	.232		1.600	.188	
VARIABLE: Verbal									
Written	.165	.124	.001	.185	.133	.352	.214	.122	.000
Oral	.162	.137	.000	.151	.077	.000	.160	.092	.000
Authors'	.286	.140		.352	.186		.415	.184	

TABLE V-5 (continued)

VARIABLE: Adverb	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.312	.148	.000	.321	.164	.000	.395	.131	.000
Oral	.393	.152	.000	.340	.144	.000	.256	.130	.000
Authors'	.569	.193		.615	.238		.690	.185	
VARIABLE: Adverb Phrase									
Written	.667	.248	.220	.707	.197	.320	.759	.267	.671
Oral	.425	.144	.000	.511	.164	.000	.348	.246	.000
Authors'	.757	.247		.793	.326		.813	.260	
VARIABLE: Adverb Clause Time									
Written	.070	.104	.468	.080	.074	.294	.098	.081	.989
Oral	.046	.044	.035	.043	.062	.001	.041	.046	.001
Authors'	.091	.055		.106	.067		.101	.064	
VARIABLE: Adverb Clause Place									
Written	.001	.005	.171	.001	.005	.709	.001	.003	.052
Oral	.003	.009	.429	.004	.012	.879	.002	.008	.171
Authors'	.006	.019		.003	.009		.006	.015	

TABLE V-5 (continued)

VARIABLE: Adverb Clause Manner	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.000	.000	.000	.003	.013	.023	.002	.010	.005
Oral	.002	.007	.000	.004	.011	.032	.001	.004	.002
Authors'	.027	.032		.017	.030		.013	.021	
VARIABLE: Adverb Clause Condition									
Written	.037	.068	.776	.051	.057	.161	.064	.061	1.000
Oral	.032	.042	.532	.051	.047	.175	.060	.042	.929
Authors'	.046	.040		.077	.069		.064	.055	
VARIABLE: Negative (Verb)									
Written	.055	.053	.000	.071	.055	.018	.088	.047	.020
Oral	.056	.043	.000	.070	.064	.017	.074	.041	.002
Authors'	.137	.074		.119	.090		.133	.098	
VARIABLE: Intensifier (Verb)									
Written	.007	.016	.001	.006	.016	.011	.011	.023	.587
Oral	.006	.015	.000	.015	.028	.202	.027	.047	.577
Authors'	.025	.027		.028	.041		.019	.024	

TABLE V-5 (continued)

VARIABLE: Modal	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.082	.061	.000	.129	.110	.002	.157	.072	.353
Oral	.085	.076	.000	.113	.085	.000	.079	.073	.000
Authors'	.222	.125		.229	.147		.188	.120	
VARIABLE: Total Verb Denot.									
Written	1.397	.467	.000	1.554	.419	.000	1.787	.423	.000
Oral	1.208	.335	.000	1.312	.388	.000	1.047	.407	.000
Authors'	2.160	.466		2.329	.764		2.414	.584	
VARIABLE: Preposition									
Written	.766	.256	.009	.774	.184	.000	.846	.328	.000
Oral	.562	.183	.000	.594	.174	.000	.596	.200	.000
Authors'	.961	.328		1.135	.438		1.228	.398	
VARIABLE: Connective									
Written	1.100	.473	.010	.940	.274	.563	1.029	.281	.039
Oral	1.119	.221	.005	1.131	.189	.002	1.117	.149	.001
Authors'	.840	.325		.862	.417		.870	.321	

TABLE V-5 (continued)

VARIABLE: Expletive	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.024	.030	.001	.020	.039	.019	.020	.029	.040
Oral	.019	.026	.000	.034	.041	.230	.033	.053	.337
Authors'	.071	.082		.056	.073		.050	.061	
VARIABLE: Total Denotational Information									
Written	9.812	2.367	.000	9.947	1.396	.000	10.746	2.013	.000
Oral	8.074	1.168	.000	8.602	1.324	.000	8.221	1.234	.000
Authors'	11.984	2.398		12.935	3.194		13.405	3.243	

TABLE V-6

SCHEFFE COMPARISON OF MEANS OF DENOTATIONAL INFORMATION PER T-UNIT, BETWEEN AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

	WRITTEN			ORAL		
Grade:	4	5	6	4	5	6
Noun	**	**	**	**	**	**
Adjective	**	**	**	**	**	**
Adj. Phrase	**	**	**	**		**
Adj. Clause			**	**	*	
Negative		*	*			
Intensifier	**	**	**	**	**	**
Quantifier				**	**	**
Determiner				**	**	**
All Noun Denot.	**	**	**	**	**	**
Verb		*		**	**	**
Verbal	**		**	**	**	**
Adverb	**	**	**	**	**	**
Adv. Phrase				*	**	**
Adv. Clause (T)					*	
Adv. Clause (P)		*	*	**	*	**
Adv. Clause (M)						
Adv. Clause (C)	**	*	*	**	*	*
Negative	**	*		**		
Intensifier	**	*		**	**	**
Modal	**	**	**	**	**	**
All Verb Denot.	*	**	**	**	**	**
Preposition	**		*	*	*	**
Connective	**	*	*	**		
Expletive	**	**	**	**	**	**
All Denotational						

* Significant at the .05 level.

** Significant at the .001 level

Discussion

The overall pattern which has begun to emerge, is continued when the sub-totals and totals of Denotational Information are considered. As shown in Figure 5-3, the language of the authors has the greatest amount of information at all three grade levels, and the children's oral language contains the least. In this case there is a greater difference between the authors' language and the children's written language, than between the children's written and oral language.

It is clear from the information contained in Table V-6 that difference between authors' language and the children's oral language is paramount. In nineteen out of twenty-five variables, there are significant differences at all three grade levels, and these differences are usually below .001 probability. In only quantifiers and adverb clauses of condition are there no significant differences at all. There is by definition, a close relationship between Denotational Information and the number of words per T-unit, so this result may have been predicted. Again, it is not possible to make a statement concerning the desirability of this difference, it is only possible to state that children at grades four, five and six are asked to read language which contains about thirty per cent more Denotational Information per T-unit, than the children would normally include in their oral language in a narrative-descriptive task.

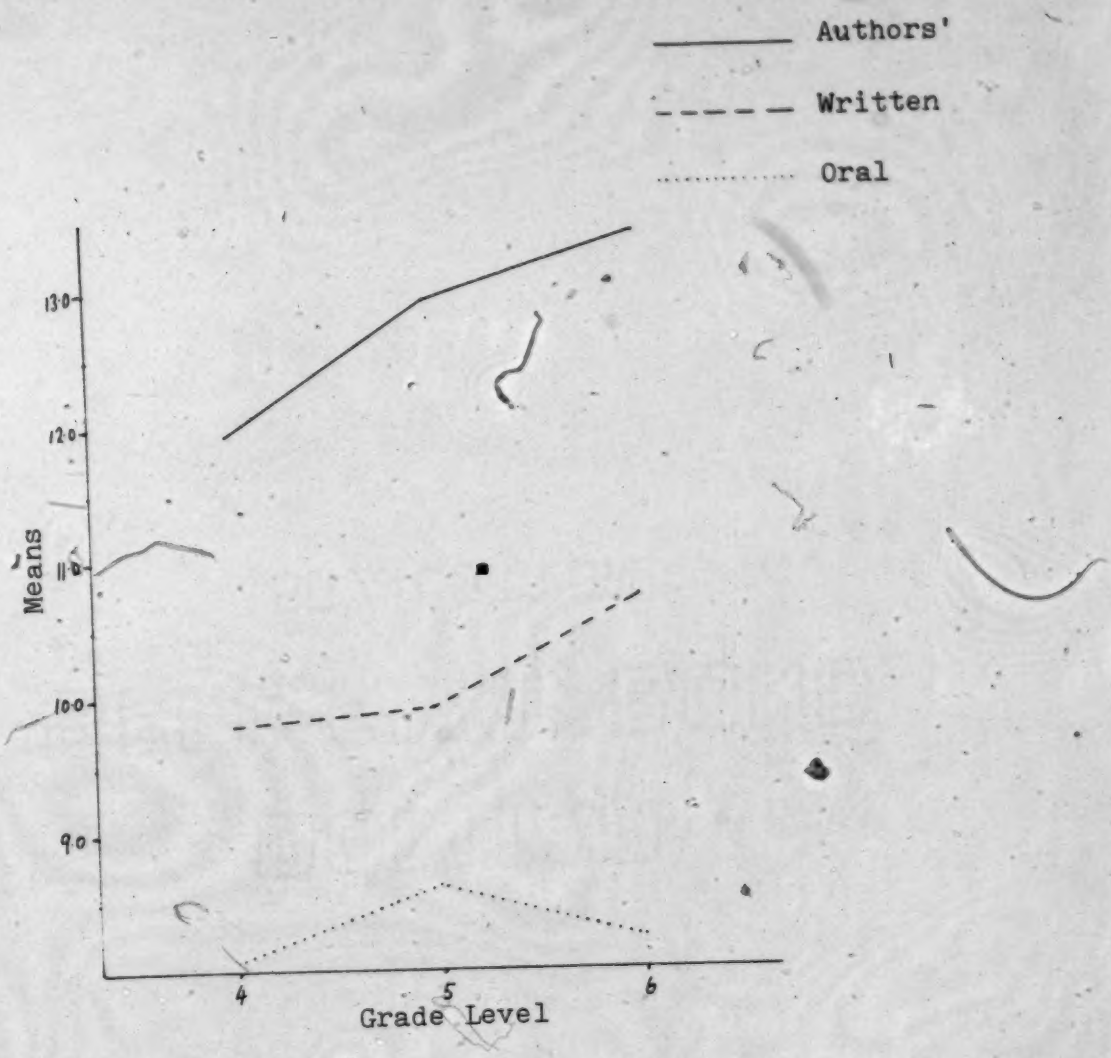


Figure 5-3 MEAN AMOUNTS PER T-UNIT OF DENOTATIONAL INFORMATION FOR AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

Of those variables which were not significantly different, the noun negative, adverb clauses of place and condition, intensifier and expletive, all had means of less than one in thirty T-units, and could not, therefore, be considered important elements of language at this level. The only item with a similar and fairly common occurrence was the quantifier. At the grade four level, the usual pattern was reversed, with the greatest incidence in the children's oral language, but at grades five and six authors' language contained the most.

The difference between the two written language types was not quite as extreme, but it was still considerable. Eleven of the twenty-five variables, including the three totals, were significantly different at all three grade levels, and only six were not significantly different at any grade level. Two of these, adverb clauses in place and condition had such low incidences in both types of language, that again they are not of great importance at these grade levels. Quantifiers, determiners, adverb phrases and adverb clauses of time all occurred with similar frequency in both types of language.

Quantifiers and determiners are both associated with nouns, which occurred significantly more often in authors' language. Both these variables serve to specify the noun information (e.g. "he sold <u>two</u> golfballs", or "he took <u>his</u> jacket and <u>his</u> shoes, and climbed out of <u>his</u> bedroom"). It is possible that the nature of the task, telling all they could remember of the film, encouraged the children to be as

specific as they could, especially as accuracy of detail is often the most common demand of comprehension exercises in schools.

Adverb phrases were fairly common in children's written language, occurring in about seven out of ten T-units, compared to about eight out of ten in authors' language. Why the children should include a comparable amount of adverb phrases while writing significantly fewer adjective phrases, is a matter for conjecture, as indeed is the greater incidence of adverb clauses of time over the other three types. It may only be said that when a child wished to give information associated with a verb, he chose adverb phrases over adverbs (by about 2 to 1), and that adverb clauses were used to denote time, but rarely place, manner or condition. There was a similar tendency, though not as great, in authors' language.

There are three possible situations which would be worthy of note in this part of the investigation. Firstly, where the children's language contains more Denotational Information than that of the authors. Such a situation runs contrary to expectations, and has therefore been the focus of the above discussion. The second situation which would be worthy of note, is where an item occurs so rarely in children's language and so often in authors' writing, that it would appear over-used in the light of the children's unfamiliarity or lack of competence in its use. This situation did not occur in Denotational Information.

A third noteworthy situation is where the children's

language, especially given its shorter T-units, employs significantly more of a particular variable than the authors' language. The only example here is that of conjunctions. Only at grade five in the children's written language does it not occur significantly more often than in the authors' writing. Yet this result may have been predicted, for the conjunction used most by children was "and". In almost every study of children's language the use or over-use of this conjunction and others significantly outweighs the use of all conjunctions in authors' language. Children, especially in their oral language, tend to string together many T-units into run-on sentences. For this reason alone, the sentence is an inadequate measure of language maturity.

Hypothesis 5(c)

> There will be no significant difference in amounts of Contextual Information per T-unit, between authors' language and children's written and oral language for:
> (i) topics and orders
> (ii) Referential Information
> (iii) Logical Information.

5(c)(i) This hypothesis was rejected for the difference between authors' language and children's oral language at grades four, five and six, and for children's written language at grades four and five. It was not rejected for children's written language at grade six. The results are presented in Table V-7, and the location of the significant differences is given in Table V-8.

5(c)(ii) This hypothesis was rejected for children's oral language at grades four, five and six, and for children's written language at grades four and five. It was not rejected

for children's written language at grade six. The data are presented in Table V-9, and the specific differences are shown in Table V-10.

5(c)(iii) This hypothesis was rejected for children's oral language at grades four, five and six, and for children's written language at grades four and six. There was no significant difference between authors' language and children's written language at the grade five level and the hypothesis was not rejected. The data upon which these decisions were made is presented in Table V-11, and the location of the differences in Table V-12.

Discussion

The number of topics per T-unit was significantly greater in authors' language than in either of the children's language types, with the exception of grade six, where a decrease in the topics used by the authors was accompanied by an increase in their number in the writing of the grade six students. It would appear at first glance that the grade six basal reader passages were approaching the same level of complexity as the writing of the students for whom they were intended. As mentioned earlier, however, it is misleading to consider the number of topics without reference to the number of orders into which these topics are arranged, for fifty topics at ten orders may be a more simple organization than thirty topics at twenty orders.

TABLE V-7

SUMMARY OF ONE-WAY ANALYSIS OF VARIANCE BY GRADE LEVEL FOR CHILDREN'S WRITTEN AND ORAL LANGUAGE AND AUTHORS' LANGUAGE FOR TOPICS AND ORDERS PER T-UNIT

VARIABLE: Topics	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	1.276	.232	.000[1]	1.349	.152	.000	1.408	.151	.323
Oral	1.190	.107	.000[2]	1.207	.121	.000	1.193	.099	.000
Authors'	1.459	.151		1.557	.258		1.463	.195	
VARIABLE: Subordinates									
Written	.263	.196	.000	.319	.142	.000	.376	.126	.004
Oral	.184	.092	.000	.270	.143	.000	.227	.095	.000
Authors'	.451	.151		.478	.201	.000	.429	.180	
VARIABLE: Orders									
Written	.431	.110	.250	.493	.190	.730	.481	.131	.008
Oral	.295	.110	.000	.340	.140	.000	.280	.099	.000
Authors'	.481	.150		.525	.178		.579	.153	

[1] Probability of difference between Authors' Language and Children's Written Language.

[2] Probability of difference between Authors' Language and Children's Oral Language.

TABLE V-8

SCHEFFE COMPARISON OF MEANS FOR STAGING INFORMATION PER T-UNIT BETWEEN AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

	WRITTEN			ORAL		
Grade:	4	5	6	4	5	6
Topics	**	**		**	**	**
Orders			*	**	**	**

* Significant at the .05 level.

** Significant at the .001 level.

TABLE V-9

SUMMARY OF ONE-WAY ANALYSIS OF VARIANCE BY GRADE LEVEL FOR CHILDREN'S WRITTEN AND ORAL LANGUAGE AND AUTHORS' LANGUAGE FOR REFERENTIAL INFORMATION PER T-UNIT

VARIABLE: Pronoun	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	1.140	.283	.147[1]	1.184	.380	.058	1.212	.257	.609
Oral	1.196	.200	.529[2]	1.260	.269	.384	1.267	.234	.970
Authors'	1.272	.349		1.363	.282		1.286	.411	
VARIABLE: Repetition									
Written	.620	.331	.194	.705	.331	.824	.716	.248	.613
Oral	.446	.170	.000	.442	.183	.000	.545	.512	.589
Authors'	.732	.261		.746	.290		.632	.256	
VARIABLE: Synonym									
Written	.125	.078	.347	.165	.110	.005	.169	.100	.167
Oral	.105	.071	.043	.107	.073	.000	.096	.055	.000
Authors'	.151	.082		.251	.136		.209	.099	

[1] Probability of difference between Authors' Language and Children's Written Language.

[2] Probability of difference between Authors' Language and Children's Oral Language.

TABLE V-9 (continued)

VARIABLE: Class Inclusion	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.067	.058	.882	.085	.070	.142	.094	.055	.573
Oral	.050	.041	.250	.072	.032	.598	.050	.036	.223
Authors'	.074	.074		.058	.065		.078	.097	
VARIABLE: Derivation									
Written	.001	.008	.000	.001	.004	.948	.001	.004	.000
Oral	.006	.014	.001	.019	.043	.027	.008	.015	.000
Authors'	.023	.027		.003	.012		.030	.030	
VARIABLE: Inclusion									
Written	.014	.029	.983	.031	.052	.379	.026	.033	.972
Oral	.042	.058	.008	.034	.032	.231	.028	.033	1.000
Authors'	.013	.018		.019	.021		.028	.030	
VARIABLE: Formal Repetition									
Written	.041	.055	.907	.058	.058	.160	.046	.035	.747
Oral	.003	.009	.002	.066	.049	.047	.056	.026	.109
Authors'	.037	.044		.034	.051		.039	.039	
VARIABLE: Total Referential Information									
Written	2.007	.501	.028	2.193	.442	.036	2.265	.372	.938
Oral	1.867	.331	.001	1.124	.352	.000	1.986	.331	.009
Authors'	2.292	.483		2.473	.547		2.300	.540	

TABLE V-10

SCHEFFE COMPARISON OF MEANS FOR REFERENTIAL INFORMATION PER T-UNIT, BETWEEN AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

	WRITTEN			ORAL		
Grade:	4	5	6	4	5	6
Pronoun Repetition					**	**
Synonym		*		*	**	**
Class Inclusion Derivation	**		**	**	*	**
Inclusion				*		
Formal Repetition				*	*	
Total Referential	*	*		**	**	*

* Significant at the .05 level.

** Significant at the .001 level.

TABLE V-11

SUMMARY OF ONE-WAY ANALYSIS OF VARIANCE BY GRADE LEVEL FOR CHILDREN'S WRITTEN AND ORAL LANGUAGE AND AUTHORS' LANGUAGE FOR LOGICAL INFORMATION PER T-UNIT

VARIABLE: Conjunction	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.660	.381	.001[1]	.481	.287	.321	.567	.232	.000
Oral	.645	.174	.002[2]	.633	.214	.000	.724	.170	.000
Authors'	.412	.203		.394	.217		.369	.217	
VARIABLE: Disjunction									
Written	.010	.026	.023	.007	.016	.032	.012	.029	.168
Oral	.022	.034	.371	.013	.019	.387	.014	.025	.289
Authors'	.034	.046		.021	.029		.024	.029	
VARIABLE: Temporal Conjunction									
Written	.022	.042	.000	.064	.064	.783	.048	.067	.017
Oral	.006	.018	.000	.051	.063	.248	.027	.042	.000
Authors'	.070	.051		.074	.049		.087	.057	

[1] Probability of difference between Authors' Language and Children's Written Language.

[2] Probability of difference between Authors' Language and Children's Oral Language.

TABLE V-11 (continued)

VARIABLE: Temporal Disjunction	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.260	.172	.000	.210	.197	.000	.225	.126	.000
Oral	.371	.142	.000	.298	.169	.000	.238	.122	.000
Authors'	.060	.050		.052	.055		.068	.054	
VARIABLE: Contrast									
Written	.036	.051	.000	.067	.078	.121	.044	.045	.000
Oral	.017	.028	.000	.024	.032	.000	.030	.032	.000
Authors'	.088	.055		.097	.066		.085	.042	
VARIABLE: Comparison									
Written	.002	.011	.000	.012	.027	.000	.013	.024	.000
Oral	.014	.027	.000	.003	.009	.000	.013	.020	.000
Authors'	.063	.053		.069	.068		.074	.057	
VARIABLE: Total Logical Information									
Written	1.046	.444	.009	.908	.277	.157	.997	.280	.007
Oral	1.140	.171	.002	1.086	.189	.000	1.107	.164	.000
Authors'	.804	.308		.778	.359		.806	.292	

TABLE V-12

SCHEFFE COMPARISON OF MEANS FOR LOGICAL INFORMATION PER T-UNIT BETWEEN AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

	WRITTEN			ORAL		
Grade:	4	5	6	4	5	6
Conjunction	**		**	*	**	**
Disjunction	*	*				
Temporal Conj.	**		*	**		**
Temporal Disj.	**	**	**	**	**	**
Contrast	**		**	**	**	**
Comparison	**	**	**	**	**	**
Total Logical	*		*	*	**	**

* Significant at the .05 level.

** Significant at the .001 level.

When a comparison of orders is made, the picture becomes rather different. Although oral language remains significantly different across grade levels, written language is significantly different only at the grade six level; a reversal of the topics finding. The situation may be summed up as follows: the children's oral language contains significantly fewer topics organized into fewer orders, at every grade level. The children's written language contains significantly fewer topics at grades four and five, but these are organized into a number of orders comparable to that of authors' language. At grade six there are a similar number of topics arranged into significantly fewer orders. (See Figure 5-4 and Figure 5-5.)

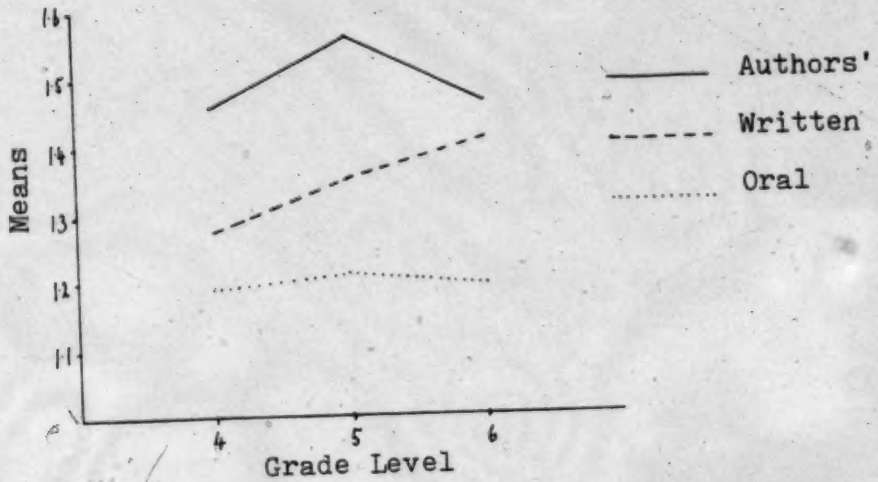


Figure 5-4 MEAN NUMBER OF TOPICS PER T-UNIT FOR AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

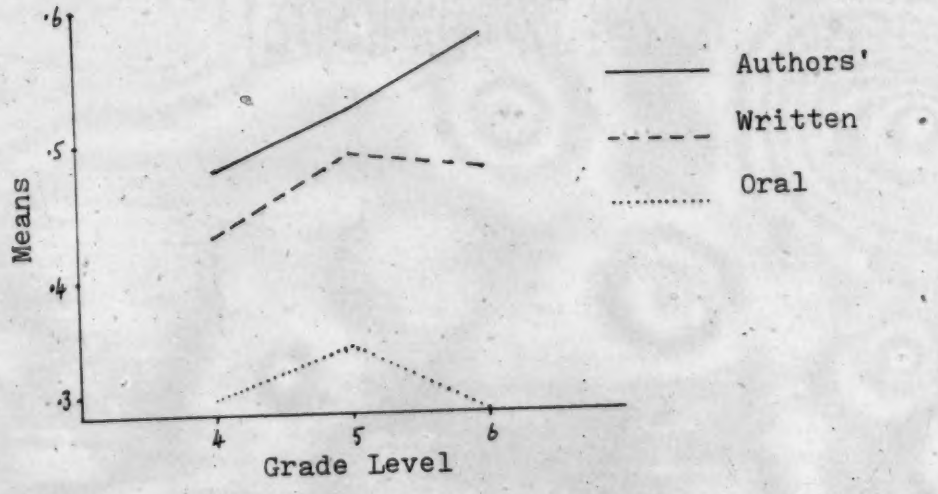


Figure 5-5 MEAN NUMBER OF ORDERS PER T-UNIT FOR AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

It may be that authors feel confident that they can introduce a greater variety of different topics as grade level increases, as was suggested in the discussion of the findings related to Hypothesis 2(c)(i). This may not be a safe assumption, however, for the results of the present comparison do not indicate a steady rise in the number of orders produced by the children. In fact there was a drop in the number of orders from grade five to grade six, in both children's written and oral language.

In total Referential Information the comparison between authors' and children's oral language, is again one of significantly greater amounts in the authors' (see Figure 5-6). Only Pronoun and Class Inclusion did not differ significantly, while Derivation, Inclusion and Formal Repetition were significantly more common, at certain grade levels, in the oral language. This result may stem directly from the nature of the task the children were asked to perform, for the films were about a small boy and two teenagers (big boys), and about adventures on a Bluenose Schooner (a large boat) and a dory (a small boat). This may have caused the greater use of Formal Repetition and Derivation, while the greater incidence of Inclusion probably stemmed from the use of "After that ...", in which "that" refers back to a number of previous events.

Nevertheless, the authors' writing did contain significantly more Referential Information in total, especially Synonyms, than the children's oral language. It seems that varying the lexical item referring to a single topic (e.g. Nero, the lion, the moth-eaten specimen, the King

of Beasts) is a property more of authors' language than of children's speech.

Figure 5-6 and Table V-10 contain information which clearly demonstrates that the two written language types were much more comparable in Referential Information than was the oral language. In only Synonym and Derivation did the differences between the written language types reach the level of significance, and then only at grade five, and grades four and six respectively. The total amounts, however, were significantly different at grades four and five. As there is a drop in the amount of Referential Information used by the authors at grade six, and a rise in that of the students, it seems that by accident or design the authors are presenting written language to the children, which contains a system of Referential Information similar to that which they are capable of producing themselves.

As illustrated in Figure 5-7, the pattern or hierarchy of language type which has been evident so far, is reversed in the case of Logical Information. The numbers are significantly greater in the children's language, with the exception of grade five written, and the most frequent occurrences are in oral language.

An examination of the specific elements of Logical Information reveals that authors' language contains significantly more examples of Disjunction, Temporal Conjunction, Contrast and Comparison than children's language at most grade levels, but that the reverse is true for Conjunction and Temporal Disjunction. At every grade level

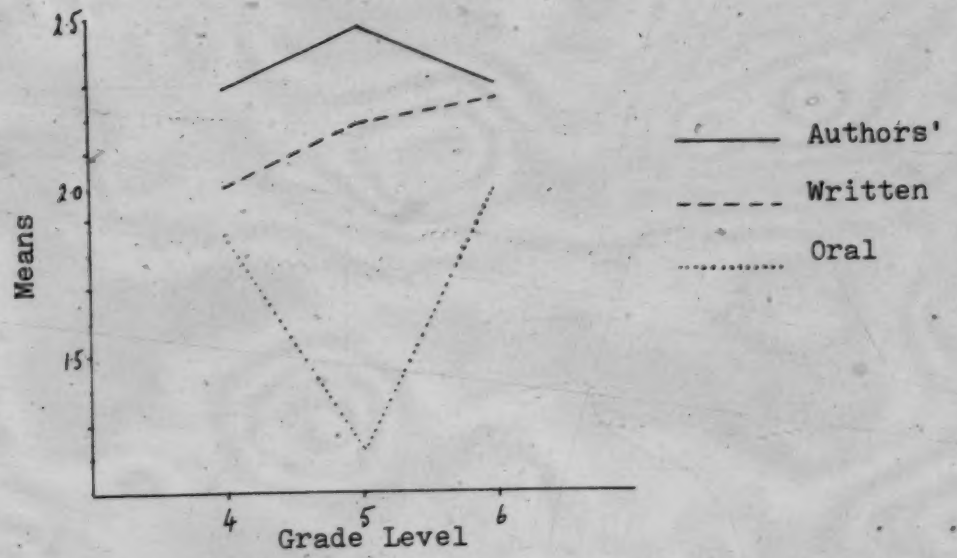


Figure 5-6 MEAN AMOUNTS PER T-UNIT OF REFERENTIAL INFORMATION FOR AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

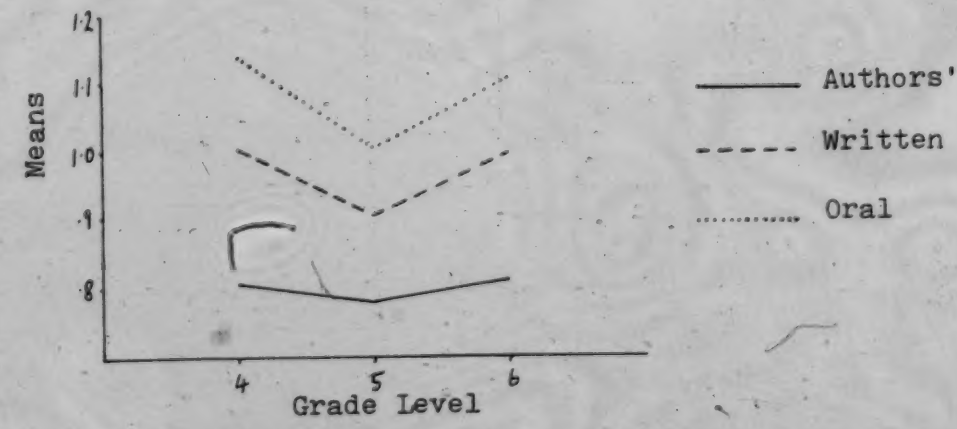


Figure 5-7 MEAN AMOUNTS PER T-UNIT OF LOGICAL INFORMATION FOR AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

but grade five for the written, this difference is significant at the .001 level.

One possible explanation for this finding has already been referred to: the common use of "and" by children, especially in their oral language. Almost always "and" signified a joining in equivalence of two or more elements, and was therefore classified as Conjunction, hence its greater incidence in children's language. The reason for the greater use of Temporal Disjunction may have been the strong temporal element of the stimuli. It was very common for the children to say or write "and then ..." This is not a perfect explanation, however, for most of the authors' writing is arranged sequentially over time. The temporal relationships, however, are often implied in authors' writing, rather than stated. For example:

> They went past the cattle path and the rushes, past the willow valley and the plum thickets. They went down a steep grassy bank, and then across a level place where the grass grew tall and coarse. They passed a high, almost straight-up wall of earth where no grass grew.
> (Passage #001)

In this passage there are six distinct phases to the journey, yet only one Temporal Disjunction is explicitly stated, the rest are implied. Children were much more apt to overtly mark the sequencing of such an event.

Another characteristic of authors' writing, is a departure from recounting the events of a story to develop the setting. For example:

> Jim pulled up the hood of his parka, for the temperature had dropped far below freezing in the night. The wind came in screaming

> gusts out of the north, so that he had to lean forward into it as he plodded along down the lake. (Passage #087)

Here the sequence of events is delayed, leading to a reduction of the Temporal Disjunction relationships used per T-unit, if not in total.

In Contextual Information then, authors include more topics at more orders, and more Referential Information than the children, but less Logical Information. In orders and Referential Information, the two types of written language appear to be more closely aligned than the two types of children's language.

Hypothesis 5(d)

> There will be no significant difference in the number of alternate syntactic structures per T-unit, between authors' language and children's written and oral language.

This hypothesis was rejected for both types of language at all three grade levels. The data upon which this decision was based are presented in Table V-13, and the specific differences are displayed in Table V-14.

Discussion

The total number of alternate syntactic structures is greater in the authors' language than in both types of the children's language. The hierarchy among language types is again evident in this comparison, although there is a greater difference between the authors' and children's language, than between the written and the oral. (See Figure 5-8.) In fact more than twice the number of structures occurred in the authors' language than in the children's (authors' mean: 2.135 per T-unit; children's written: 1.010; children's oral: .632).

TABLE V-13

SUMMARY OF ONE-WAY ANALYSIS OF VARIANCE BY GRADE LEVEL FOR CHILDREN'S WRITTEN AND ORAL LANGUAGE AND AUTHORS' LANGUAGE FOR SYNTACTIC INFORMATION PER T-UNIT

VARIABLE: Relative Clause	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.050	.048	.161[1]	.062	.052	.529	.062	.039	.000
Oral	.017	.021	.000[2]	.056	.042	.000	.027	.030	.000
Authors'	.074	.074		.078	.080		.116	.074	
VARIABLE: That + S Subject/Object									
Written	.022	.030	.160	.026	.043	.115	.027	.036	.444
Oral	.023	.030	.231	.034	.041	.442	.035	.042	.917
Authors'	.038	.047		.047	.044		.039	.037	
VARIABLE: WH + S Subject/Object									
Written	.010	.018	.576	.008	.019	.041	.017	.036	.867
Oral	.012	.020	.845	.003	.008	.002	.018	.025	.804
Authors'	.014	.020		.021	.030		.014	.021	

[1] Probability of difference between Authors' Language and Children's Written Language.

[2] Probability of difference between Authors' Language and Children's Oral Language.

TABLE V-13 (continued)

VARIABLE: Infinitive Object	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.056	.073	.477	.074	.082	.323	.070	.062	.464
Oral	.065	.074	.770	.074	.061	.321	.066	.053	.301
Authors'	.077	.074		.099	.074		.087	.057	
VARIABLE: Infinitive Object Purpose									
Written	.035	.041	.035	.043	.063	.415	.031	.039	.027
Oral	.016	.040	.000	.030	.038	.069	.034	.041	.053
Authors'	.063	.052		.059	.053		.062	.060	
VARIABLE: Ing Nominative									
Written	.034	.046	.789	.034	.039	.088	.060	.053	.153
Oral	.046	.047	.924	.033	.034	.079	.053	.052	.056
Authors'	.042	.042		.064	.086		.086	.067	
VARIABLE: Adverb Expansion 1									
Written	.106	.132	.090	.135	.090	.042	.165	.113	.807
Oral	.082	.066	.006	.112	.085	.003	.103	.067	.005
Authors'	.155	.073		.196	.123		.179	.102	

TABLE V-13 (continued)

VARIABLE: Common Elements	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.311	.262	.403	.227	.166	.001	.294	.154	.008
Oral	.115	.127	.000	.113	.095	.000	.121	.094	.000
Authors'	.375	.190		.359	.172		.411	.203	
VARIABLE: WH									
Written	.021	.056	.802	.020	.029	.034	.019	.037	.850
Oral	.002	.005	.266	.007	.018	.000	.005	.011	.026
Authors'	.015	.023		.039	.042		.022	.026	
VARIABLE: WH + Aux/Verb									
Written	.063	.059	.002	.079	.061	.000	.088	.064	.000
Oral	.026	.030	.000	.038	.043	.000	.045	.043	.000
Authors'	.113	.077		.169	.098		.160	.090	
VARIABLE: (THAT) + S									
Written	.044	.058	.996	.059	.053	.347	.074	.071	.191
Oral	.029	.031	.427	.030	.041	.578	.025	.039	.173
Authors'	.043	.040		.042	.052		.050	.050	

TABLE V-13 (continued)

VARIABLE: (That) + S Obj. Quote	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.031	.046	.000	.027	.053	.000	.026	.052	.000
Oral	.028	.051	.000	.022	.043	.000	.024	.042	.000
Authors'	.113	.108		.087	.078		.086	.084	
VARIABLE: Comparative 1									
Written	.004	.014	.001	.003	.016	.000	.004	.012	.000
Oral	.001	.004	.000	.007	.017	.001	.012	.018	.000
Authors'	.024	.032		.028	.033		.043	.044	
VARIABLE: With Phrase									
Written	.005	.013	.000	.007	.017	.013	.007	.018	.002
Oral	.002	.005	.000	.006	.014	.006	.004	.008	.000
Authors'	.025	.031		.022	.028		.027	.033	
VARIABLE: Adjective									
Written	.097	.130	.000	.045	.045	.000	.134	.105	.000
Oral	.072	.060	.000	.050	.089	.000	.051	.118	.000
Authors'	.514	.497		.532	.293		.572	.256	
VARIABLE: Appositive									
Written	.005	.023	.000	.004	.016	.003	.007	.018	.000
Oral	.004	.012	.000	.007	.018	.008	.015	.025	.000
Authors'	.048	.046		.034	.058		.045	.044	

TABLE V-13 (continued)

VARIABLE: Participle	Grade 4			Grade 5			Grade 6		
Language Type	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.	Mean	Std.Dev.	Prob.
Written	.011	.025	.001	.014	.026	.000	.016	.040	.000
Oral	.006	.016	.000	.001	.006	.000	.008	.019	.000
Authors'	.049	.062		.054	.063		.099	.076	
VARIABLE: Genitive									
Written	.041	.065	.000	.050	.092	.000	.050	.049	.000
Oral	.022	.028	.000	.031	.046	.000	.015	.029	.000
Authors'	.124	.111		.184	.102		.192	.125	
VARIABLE: Adverb Expansion 2									
Written	.001	.006	.169	.002	.009	.199	.003	.011	.899
Oral	.001	.003	.114	.002	.007	.181	.009	.015	.459
Authors'	.006	.019		.007	.015		.005	.014	
VARIABLE: Total Syntactic Information									
Written	.931	.460	.000	.938	.307	.000	1.161	.277	.000
Oral	.573	.250	.000	.659	.238	.000	.663	.197	.000
Authors'	1.860	.531		2.124	.620		2.321	.571	
VARIABLE: Passive									
Written	.020	.032	.995	.032	.048	.998	.035	.043	.974
Oral	.008	.016	.191	.006	.022	.036	.009	.021	.016
Authors'	.020	.035		.031	.044		.037	.053	

TABLE V-14

SCHEFFE COMPARISON OF MEANS FOR ALTERNATE SYNTACTIC STRUCTURES PER T-UNIT, BETWEEN AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

	WRITTEN			ORAL		
Grade:	4	5	6	4	5	6
Relative Clause			**	**	**	**
That + S Subj/obj.					*	
WH + S Subj/obj.						
Infinitive Object			*	**		
Infinitive Obj.Purp.*						
Ing Nominative		*		*	*	*
Adverb Expansion 1						
Adverb Expansion 2		**	*	**	**	**
Common Elements		*			**	*
WH	*	**	**	**	**	**
WH + Aux/Verb						
(That) + S Obj.						
(That) + S Obj. Quote	**	**	**	**	**	**
Comparative 1	**	**	**	**	**	**
With Phrase	**	*	*	**	*	**
Adjective	**	**	**	**	**	**
Appositive	**	*	**	**	**	**
Participle	**	**	**	**	**	**
Genitive	**	**	**	**	**	**
Total Syntactic	**	**	**	**	**	**
Passive					*	*

* Significant at the .05 level.

** Significant at the .001 level.

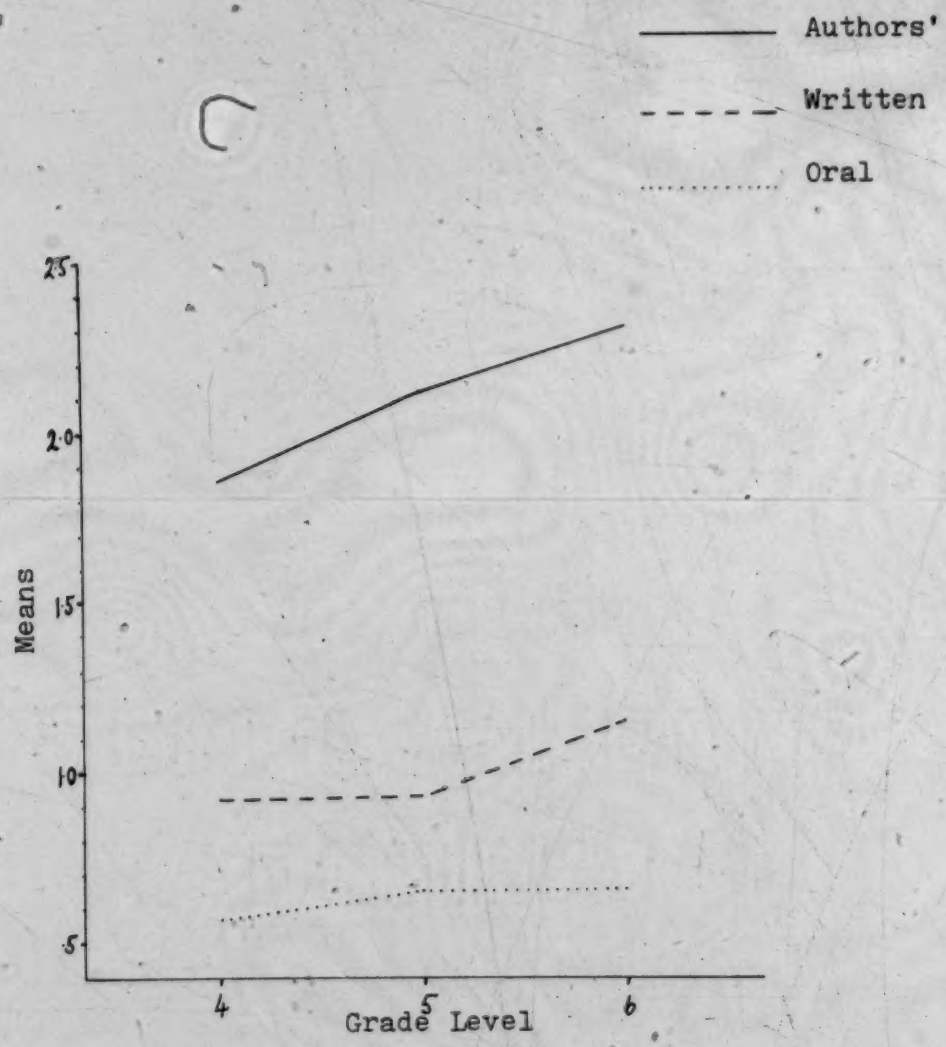


Figure 5-8 MEAN NUMBER OF ALTERNATE SYNTACTIC STRUCTURES PER T-UNIT FOR AUTHORS' LANGUAGE AND CHILDREN'S WRITTEN AND ORAL LANGUAGE

Riling (1965) concluded that authors' language and children's oral language were two "unlike things", when compared syntactically, and she also found that children's written language contained fewer infinitives, participles and relative clauses. In the present study these findings were replicated, although relative clauses and infinitives were significantly fewer only at certain grade levels (see Table V-14). Participles in the present study referred to those in adjectival position only, while Ing Nominative accounted for gerunds. The former were significantly fewer in children's language at all grade levels, and the former were significantly different at none.

Only adjectives were so much more common in authors' language than in children's, as to deserve comment. This is particularly true of the post-verbal position rather than the pre-nominal. It could not be suggested that children were unaware of this structure or lacked competence in its use, but they certainly used it far less often than the authors.

Another interesting finding was that the passive was used as much in children's writing as in authors', but still only rarely. It seems that this structure is used sparingly at these grade levels, despite the large amount of discussion devoted to it by linguists.

It may be said then, that authors use a similar variety of alternatives to the basic T-unit, but in much greater quantities than the children. It should be borne in mind, however, that the children were not encouraged to revise their work, so that the use of alternate syntactic

structures, with which they had had little experience, would be unlikely.

CONCLUSIONS

1. There is a very limited amount of gradually increasing language complexity across the three grade levels in either authors' or children's language.
2. The mean T-unit length was significantly greater in authors' language at all three grade levels than in both the children's written and oral language. Hence, the amount of information per T-unit was also significantly greater.
3. There is a great difference between authors' language and children's language in all but Relational Information and ordering of topics. It is open to conjecture whether this discrepancy is a factor of difficulty in the children's comprehension of the authors' language.
4. There was more Logical Information in children's oral and written language than in authors' language. This was due to the children's use of "and", and their explicit use of the Temporal Disjunction relationship. Conjunction was the most common item of Logical Information in all three types of language.
5. Pronoun and Repetition were the most widely used items of Referential Information, in all three language types.
6. Authors employed a similar variety of alternate syntactic structures to the children, but in far greater amounts, especially the adjective structure.
7. The passive construction was used rarely by authors

and children.

8. In many cases, there was a closer relationship in terms of similarities between the two written language types (authors' and children's), than between the two types of children's language (written and oral).

9. The Semantic Potential Theory is a complex, but valid theoretical framework for the description and analysis of language, both written and oral.

CHAPTER VI

CONCLUSIONS AND IMPLICATIONS

THE STUDY IN REVIEW

It was felt that despite the wealth of research and theorizing in the area of English grammar, there was still a need for an adequate descriptive and evaluative tool for written language, especially one which could be applied to commercial Language Arts material. The various readability measures were seen to have a number of limitations, as mentioned in Chapter II, and other written language research had not addressed the problem directly.

With this in mind, a cooperative research project was initiated, which involved four tasks: the development of an inchoate descriptive theory, later called the Semantic Potential Theory of Language; the application of this theory in a description of the oral language of nine, ten and eleven year old children; its application to their written language; finally its application in a description of the language of selected authors of grade four, five and six basal readers. The first two tasks were undertaken in Part I of the project and were completed by Fagan (1978) and the third task was undertaken by Cameron (1979). The present study constitutes Part III of the project and addresses task four.

Six of the most widely used reading series were chosen, and passages from the basal readers of each series were randomly selected for analysis. An hypothesis underlying the study of the children's language, was that this language

continues to develop over the age levels studied, and it was felt that a development would also be found in the authors' language. This was further expected because of the great importance attached by teachers to measured reading levels of students. A grade six student who was found to be reading at a grade four level would usually be considered in need of remediation, so it was expected that reading material specifically recommended for grade six level students would be measurably different from that recommended for grades four and five.

In order to identify any parallel development or divergences of specific elements of language between that of the basal readers and the language of the children for whom the material is recommended, a comparison was made between the authors' language and the children's written and oral language.

MAJOR CONCLUSIONS

Chapters IV and V contain a number of conclusions drawn from the investigation. These may be summarized thus:

1. Only a small minority of the specific types of information identified in the Semantic Potential Theory showed a progressive development over the three grade levels of basal readers studied.
2. Those elements which did not show such development, were distributed in what appeared to be a haphazard fashion, with their greatest frequency occurring at any of the three grade levels.

3. There was a significant development of increasingly complex discourse organization as measured by the number of orders (different topics) occurring in the passages.

4. Of the large number of alternative syntactic structures to the basic T-unit, only six occurred more frequently at the grade six level. The incomplete T-unit might be considered as another alternative, but it too was not used in any systematic fashion. The incomplete was significantly more frequent in the Gage Strategies series.

5. T-unit length did not increase significantly over the three grade levels.

6. With the exception of the incompletes, there were no significant differences between the six series. This, despite the fact that two series are now considered out of date, and three are being presented by their publishers as the latest development in Language Arts materials.

7. There is an apparent lack of specific controls put on the written language of basal readers by authors themselves.

With reference to comparison of the authors' language with that of the children, the following conclusions were drawn:

1. The differences in amounts of information per T-unit, far outweighed the similarities in the three language types.

2. With one exception, the authors' language contained very significantly more information of every type classified in the Semantic Potential Theory.

3. The use of alternate syntactic structures was far more frequent in the authors' language than in that of the children.

4. The similarity between written language types (authors' and children's) was greater with reference to some types of information than that between children's language types (written and oral).

IMPLICATIONS

For The Teacher

1. A basic tenet of good teaching is that instructional materials should be suited to the reading level of the student. It appears from the present study that even if the teacher is aware of the student's reading level, a simple choice of reader for that level is by no means an assurance of suitability. Teachers would be wise, therefore, to closely examine the materials and make a judgement of suitability in the light of their own experience, rather than on the basis of the publishers' recommendations.

2. For a teacher using a basal reader with an average class at the recommended grade level, closer examination of the specific articles and stories it contains, appears necessary. Some of the material may be suitable for use only in an instructional situation with small groups. Some may be suitable for independent work by the students. This is particularly important at the grade four and five levels, for apart from the exceptions noted in Chapter IV, there were few significant differences between the grade four and five passages and those at the grade six level.

3. A wide variety of material from other sources may be preferable to the exclusive or predominant use of the basal

readers. Such material chosen on the basis of the teacher's experience may be better suited to the students' reading abilities.

4. If the students are to be asked to deal with the material in the basal readers, then preparatory work on certain types of information the language contains may be desirable. For example, prior introduction to some of the alternate syntactic structures, or perhaps discussion of the more complex items of Denotational Information such as adjective phrases or different types of negatives. Thus the teacher may have to pursue a diagnostic approach in matching materials to children.

5. Students who have difficulty with short-term memory tasks should, if possible, be asked to read those items with the less complex discourse organization. The introduction of fewer different topics will put less of a strain upon this faculty.

6. In order to make the children's language more mature, lessons on the use of the Logical and Referential Information could be given. The over-use of the Conjunction and Temporal Disjunction forms by children, could perhaps be overcome in this way, and their understanding of the specific relationships implied by the connectives in the other categories would be enhanced.

7. It is natural for the teacher to assume that an average group of children should be able to deal with material included in the basal reader designed for their grade placement. If they fail to do so satisfactorily with this

material, it would appear that there is a problem, whether affective or intellectual, with the children themselves. This may not be the case. The fault may lie with the material. The teacher should be aware of this possibility.

8. Teachers should have a list of very specific criteria for analyzing basal reading series. In addition to such factors as interest, and content (in terms of skills), the linguistic content of the stories to be read must also be considered. When publishers present their materials at workshops they should be asked to address each of these criteria. A suggested list based on the findings of this study might be:

   a. What is the level of difficulty of the text? On what criteria was this decision made?
   b. How great a discrepancy in difficulty exists between texts designated at different grade levels?
   c. What control exists for length of utterance? (One such measure is T-unit length.)
   d. Does the text contain utterances that are not complete grammatical units (such as T-unit or sentence). (Incomplete grammatical utterances were called incomplete T-units in this study.) What is the rationale for including these?
   e. To what degree and in what manner is there an expansion of nominals (adjectives, adjective clauses, phrases, etc.)?
   f. How closely knit is the story in terms of the number of topics and the elaboration of these topics?

g. What types of language cues are used to interrelate topics throughout the story?

h. To what extent is linguistic information contained in basic T-units (basic sentence patterns - Subject - Verb - Object) and in structures alternate to these basic patterns?

For The Publisher

1. A much greater degree of control over the materials collected in basal readers is necessary. A genuine attempt to make the complexity of grade four, five and six reading materials a progressive development is essential. This could be achieved through pilot testing, through experimentation, or by consultation with large numbers of teachers experienced at the grade level for which the material is destined, and by attempting to incorporate latest research findings.

2. For the material at present on the market and about to be widely adopted by Alberta schools, it is too late for such measures. The publishers should be responsible, however, for informing teachers that the difficulty of the reading material is arbitrarily set at the various grade levels.

SUGGESTIONS FOR FURTHER RESEARCH

1. The Semantic Potential Theory of Language appears to be a good basis for a descriptive tool. It is, however, so detailed as to be cumbersome in its present form. Identification of its least valuable and most valuable elements should be made, and the theory modified.

2. In Chapter I it was stated that there was a need for a description of language, but also for an instrument for the

measurement of language difficulty. With refinement, the Semantic Potential Theory may supply the first requirement, but experimentation is required to formulate the second. Those items of information which cause reading difficulty must be identified.

3. Once these items have been identified, it should be determined whether or not these items can be manipulated by authors, without loss of literary excellence, or without loss of interest for their readers.

4. The present study dealt with each grade level of each series as a unit in the experimental design. This leads to generalizations which may be misleading. Further study of individual volumes, and within those, of individual stories and articles would be extremely valuable. In this way, any variations within a series could be identified.

5. It has been discovered that there is little progressive difference in the amounts of information contained in authors' language over three grade levels. It was not possible in the present study to state that there is little progression of difficulty. Nor was it possible to assign a level of difficulty to any of the series studied. It would be valuable if a measure of difficulty were made of all the materials studied. This could be achieved through the use of the Cloze procedure or through specially designed testing procedures on a normal population.

6. There were discrepancies between the amount of information used by authors and children in their language output. Research is needed to determine how great a discrepancy must occur before problems in comprehension occur.

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APPENDIX A

DIVISION OF LANGUAGE SAMPLES INTO WORDS, T-UNITS AND INCOMPLETE T-UNITS

Words: In cases where there is doubt as to the boundaries of a word, the division provided for that entry in Webster's New Collegiate Dictionary (1953) is to be followed.

In addition, the following rules are to be applied:

1. Solid or hyphenated compound words are counted as one word, e.g. turn-around, noontide, chess-board, garagemen.

2. Contractions are counted as two words,

e.g. I'll, didn't, wouldn't.

3. Signs, symbols, and abbreviations are considered equivalent to the words they represent.

e.g. 50¢ - fifty cents; $2.00 - two dollars;

Mr. - Mister.

T-Unit: This is a single independent predication (main clause) together with any subordinate clauses that may be grammatically related to it. It may be a single or a complex sentence, but not a compound sentence. Where there is a compound sentence the division is made before the connecting conjunction (and, but, etc.) and the next T-unit begins with the conjunction.

Further guidelines for segmenting T-units are:

1. When a quote consists of more than one principal clause, only the first one is included with the words that identify the speaker.

e.g. /"Got 'em both from a small circus that went broke," Mr. Wills told my father. / "I always wanted to work for a circus."/

2. Having a T-unit within a T-unit is possible.

e.g. /At last (/my watch showed me that it was one

in the morning/) I saw the gleam of water amid the openings of the jungle./

3. When the meaning of a passage indicates that a subordinate conjunction has been omitted, the clause involved does not form a new T-unit.

e.g. /You would be amazed if you could see them and (if) you could hear their music./

4. Interjections are included in the succeeding T-unit if the following statement is an elaboration; otherwise they are considered to be incomplete T-units.

e.g. /"Well," he said to himself, /"I will ride on."/

/Hi Jimmy/ What are you doing here?/

5. "So" when used conditionally is a subordinate conjunction but when used with the sense of "and so", it is a coordinate conjunction and begins a new T-unit.

e.g. /Mike wrote to say he had saved up enough to buy fins and stuff, so there will be no leaving him out./

/Gout bends his back and slows his arms./ So these two talk./

Incomplete T-unit: This consists of a group of words which do not form a complete clause but which are necessary to the ongoing flow of language. Since it does not form a complete clause, it is different from a T-unit. It may be lacking a subject, a verb, object, or complement, or any combination of these.

e.g. /the sun's so warm/ the breeze so lovely/.

/It was behind them./ Close, too, to be heard in the teeth of that storm./

Symbols used for segmenting T-units are:

/ T-unit boundary (/ /) T-unit within the boundaries of a second T-unit

/____/ Incomplete T-unit

An example of T-units is given in the transcription below.

/Aunt Phoebe laughed./ "The day Mrs. Wish is not here, you won't be here either,/ for I'll be gone too./ Couldn't fancy this place without her./ No, there are no changes./ Though Mrs. Wish says there have been a couple of men buying food in the village shop./ Camping somewhere I suppose./

Number of T-units: 5

Number of Incomplete T-units: 2

APPENDIX B

DENOTATIONAL/RELATIONAL/SENTENTIAL/ CONTEXTUAL/SYNTACTIC INFORMATION

GENERAL DIRECTIONS

1. Classify each T-unit as Declarative, Interrogative, or Imperative.
2. Circle prepositions, conjunctions, expletives.
3. Underline nouns in red.
4. Underline verbs in green.
5. Analyze the nouns for SUBJECT, DIRECT OBJECT, INDIRECT OBJECT, COMPLEMENT relations.
6. Analyze each noun for denotational information.
7. Analyze each verb for denotational information.

DENOTATIONAL INFORMATION

Nouns: This classification includes all nouns and pronouns (personal, demonstrative, relative, and interrogative).

Pa and Ma did not care how much they played in the creek.
"What is that?" Laura asked.
"That is a tableland, Laura."

Compound nouns: drift-ice, air hole, lamp oil.

There in: There will be no smooth-ice fishing.

Verbs: This category includes complete verbs which are marked for tense and number and with the necessary modals and auxiliaries but excludes verbs such as gerunds, infinitives, past participles and present participles when the latter two are used without an auxiliary.

They went down a steep, grassy bank.
Maybe they had been hit by a meteor.

Information Attached to Nouns:

Adjective: This is a descriptive word denoting quality, colour, etc. which is used with a noun or noun equivalent.

He pushed on through the thick, tall grass.
The grass was tall and coarse.
"Don't go in where it's deep."

Compound adjectives will be counted as one:

smooth-ice fishing.

Adjective Phrase: This consists of a group of words which lack a subject and/or predicate. The most common type is introduced by a preposition.

flying back to her nest in a spruce tree.

or

Angus McTavish's farm, located out in the Alberta foothills.

Adjective Clause: This consists of a group of words containing a subject and predicate but is attached to a noun in a main clause for its interpretation.

the odd half-hours which she was allowed for play.

Negation: Words such as no, not, neither, which are contrary to a positive object or event. The negative element may also be attached to the adjective.

But grippe, she asserted, was like no other illness.
It seemed to him just then that there was not much kindness in the world.

Intensifier: Words such as very, quite, certainly, really, extremely, so, real, too, which increase the degree of a modifier.

So he walked on somewhat tremblingly.
making a very satisfactory dinner of a certain boy.

Determiner: Words that denote a specific concept or class. e.g. the, a/an, my, your, his, her, its, our, their, this, that, these, those.

This old thing?
fishing a dollar out of his pocket.

Quantifier: Words that designate a certain number of a class. The quantifier has an adjective function as for example, all, any, some, certain, twenty-seven, several, more, less, none; and word groups like, a twelve-year-old, a lot of, a little, and a few, when they have an adjectival position.

You can all squeeze into my armour.
When three sheaves were tied, they were stacked against each other.

Information Attached to Verbs:

Verbs/Verb + Particle: A verb + particle is of the form get on as in "He got on the horse," or let down in "The man let down the rope," but not ran from in "He ran from the house."

Transitive: Two tests may be applied to determine if a particle is attached to the verb, rather than constituting a preposition. These tests may be:

The particle may be moved as: "The man let the rope down."

or

The sentence may be passivized as: "The horse was gotten on."

Neither of these tests can be applied to the third sentence: "He ran the house from/The house was run from."

Intransitive: Three tests may be applied to the intransitive form:

Test 1 The particle may not be moved as: "He turned up" is not acceptable as *"Up he turned." "Up" is a particle.

Whereas "He climbed up." may be written "Up he climbed" and "up" therefore is not a particle in this case.

Test 2 Inseparability. The particle may not be separated from the verb as in: *"He turned suddenly up at the party." "Up" is a particle.

Whereas "He climbed nimbly up the tree" is acceptable, so "up" is not a particle in this case.

Test 3 Meaning. The meaning of the verb + participle is different from that of the individual meanings of the two parts added together.

"We took off (equals "departed") for Calgary." Whereas in "He climbed up," the meaning is that of climbed plus that of up, as shown by the question "Where did he climb?" The answer, "Up".

If the expression in question shows one of the three characteristics it may be labelled, verb + particle.

Verbal: This includes infinitives and verb parts which are incomplete because they lack auxiliaries or modals, such as participles, gerunds.

by walking very politely up to him.
They wanted nothing more than to till their fields in peace.

Adverb: This is a descriptive word which may indicate time, place, manner, condition.

Everything seemed gloriously as usual.
Alice asked cautiously.
There was once a boy whose name was Pat Fitzpatrick.

Adverb Phrase: This consists of a group of words which lack a subject and/or predicate. The most common type is introduced by a preposition.

There was a wooden fence round the hut.
You'll never catch a leprechaun with your eyes shut.
He's alone for the first time in his life.

Adverb Clause: This consists of a group of words containing a subject and predicate but is attached to a verb (or adverb) in the main clause for its interpretation.

Time: indicating when.
Every morning when she awoke, the old mother would blow up the fire.

Place: indicating where.
in every different part of the country where they lived, there was always a crock of gold.

Manner: indicating how.
gazing into them was like looking out of the portholes of a sinking ship.

Condition: indicating circumstances.
If she had any other clothes, the children had never seen them.

Negation: Words suggesting contrary to the positive: not, never.

Mrs. Rachel was not to blame for this.
it had never looked redder than at the moment.

Intensifier: Words such as quite, rather, very, extremely, which modify the degree of an adverbial.

He was rather like a little cat in his fur and tail, but quite like a weasel in his head and habits.

Modals: These words indicate a meaning of obligation or they involve an inference - must, might, ought, can, could, may, shall, should, will, would, have (to), dare (to).

whatever the snake might have been thinking.
You must on no account go outside the gate.

Other Information:

Interjections (Expletives): an expression of pain, surprise, anger, pleasure, or some other emotion: Oh! Ouch! Why!

"Oh, Ma ..." she pleaded, "that air's so soft."

Prepositions: A word used to show the relation between a noun or pronoun, called its object, and some other word in the sentence.

Single words: at, by, in, for, from, off, on, up, above, after, of, around, before, behind, between, below, during, except, over, through, to, under, until, without, with, about, against, among, beneath, beyond, despite, inside, into, outside, upon.

Group: in front of, by means of, on account of, in place of, apart from, along with, except for, as far as.

Mrs. Gray was working in her garden.
She stood apart from her schoolmates.
His breath came out on the cold air.

Conjunction: A word which connects words, phrases or clauses.

Examples: not, so, and, for, but, or, nor, yet, both ... and, not (only) ... but (also), either ... or, neither ... nor, whether ... or, if, although, though, that, because, since, so that, so ... that, in order that, as unless, before, than, where, who, when, which, as if, as soon as, once, and then, like, and so.

Adverbs used as conjunctions: how, why, where, while, before, after, however, therefore, nevertheless, hence, accordingly, in case (that), in order that.

Also: accordingly, after all, and yet, as well as, just as, at times, all the same, besides, but then, else, even, finally, first, moreover, on the other hand, in the first place, or else, still, later, meanwhile.

He alternately ran and slid across the marsh until he came to the turn-around.
It so happened that just as Quixote rode up to the inn ...

RELATIONAL INFORMATION

Verb: This is a complete verb, that is one marked for tense and number and with all the necessary modals and auxiliaries attached. It may occur in a main or subordinate clause.

Bill stood by the marsh.
this year he would be giving his mother a Christmas gift.

Subject: This is the noun or pronoun immediately to the left of the verb.

The snowflakes fell gently.

Exceptions include:

"What is that animal?" he said.
"Come on, Millicent." (subject understood)

In such sentences as "There was a boat" or "It was getting foggy" the existential element is counted as the subject.

Direct Object: This is usually the single noun to the right of the verb (with no preposition intervening).

They locked the door.

Exceptions include:

a. questions where the Direct Object may precede the auxiliary Do.

"What gifts shall we get with our coupons?"

b. nouns following the verb To Be.

"Varyachka, you are a little slow poke!"

c. nouns following such words as "named, called."

As for the youngest son, he was named Boots.

Complement: The noun which lies to the right of the verb To Be, or such nouns as "named, called". For example, in examples b and c above, slow poke and Boots are complements.

Indirect Object: When two nouns occur to the right of the main verb (without an intervening preposition) this is the first of the two nouns. It may also occur after the prepositions "to" or "for", and after such verbs as "tell".

So she announced that she would pay him a visit.
I took the horned toad to my uncle.
Your daddy told you to stop to home.

SENTENTIAL INFORMATION

This component consists of the three sentence types:

Declarative (which is a statement of information, intent, etc.);

Interrogative (which questions or seeks information);

Imperative (which requests or commands).

Declarative: Chris and Peggy stood in the doorway of their low log house.

Interrogative: "Did you write that story for your homework, Chris?"

Imperative: "Get that unicorn out of my garden."

CONTEXTUAL INFORMATION

General Directions

1. Identify the topics by underlining in red.
2. Indicate the level of the topic with respect to old/new information.
3. Underline Referential Connectives in blue.
4. Underline Logical Connectives in yellow.

Staging

First, identify the topics/comments; second, indicate if they are new/old information; third, designate the order (actually the sequence and number of different topics/comments).

These guidelines may be used (for T-units only; ignore underlined and parenthesized material).

1. Identify the topic of each clause. This is the NP to the left of each complete verb. The remainder is the comment.

2. Each clause (main and subordinate) has a topic/comment; that is, there may be more than one topic per each T-unit.

3. There is only one topic if the verb is compound; but two topics if there is a compound subject.

4. The topic of the first T-unit is of the First Order, since it is the first topic to be introduced.

5. Decide whether subsequent topics are "new" (never previously mentioned in the discourse) or "old" (previously mentioned) within the protocol. If new, assign it to one order below the previous topic. If old, assign to the same order as the topic with which it is coordinated.

6. A topic is old if it is in a coordinated relationship with an earlier topic/comment. Coordination may be determined by the presence of the referential information: pronoun, repetition, synonym, class inclusion (see definitions below).

7. A topic of an embedded clause to the right of the main clause is assigned one order below the topic/comment of its coordinate and is designated by an (a) with its coordinate number (e.g. 1a, 4a, 6a, etc.). If it is a new topic, it is given an order number next in the sequence.

8. If the subordinate clause is to the left of the main clause, it is given the number of its coordinate topic or the number next in the sequence if it is a new topic. Then the topic of the main clause is treated as if it were in a subordinate clause to the right of the main clause.

9. In sentences beginning with There, It (when it is used in an existential manner, It is up to you) the whole sentence is considered the topic (with no comment). The "content" of the topic is the noun or pronoun to the right of the verb.

10. If it is the first topic in the protocol and refers to a movie, it is designated as First Order.

Example:

Once upon a time when (1) we lived far out in the country in Northern Alberta (1a) we had a pretty little bay mare named Jennie.

(2) Jennie was not very big but since (2) she liked to eat and the children (3) used to sneak extra snacks to her, (2a) she became very fat. (2) She was almost as wide as (2a) she was long.

(2) She had a small dainty head and slender legs. (2) She was really quite clever. (4) Grandfather used to say that (2a) she was just plain lazy, but (5) this was not strictly right. (2) She was just smart.

Number of topics: 14

Number of orders: 5

Number of subordinates: 4

Number of topics per order:

1	2	3	4	5
2	9	1	1	1

Referential Information

The following guidelines are used to determine referential information.

Pronoun:* A pronoun is used to stand in for and refer back to a previous antecedent. The pronouns may be personal, relative, demonstrative, possessive.

So the Owl sat and thought for three nights and a day; and then he called the birds together.
Wesukeshak was asked to present their request.

Repetition: A lexical item itself is repeated and it is meant to refer to the same item previously introduced.

But being a very silly Raven, he misjudged the distance ... Pretty soon the raven lost his way completely.

Synonym: One lexical item replaces another but is meant to refer to the same object or event. The substituted word is the same part of speech. One class of synonyms is words which might be listed in a dictionary as synonyms. Other words are synonyms only within the particular context, where they refer to the same thing.

It all happened because of a great change which came over Chouchou. The grey cat was a good companion.

Class Inclusion: A noun phrase introduces a subset or a specific instance of a class mentioned previously or names the class of a particular subset already introduced.

He looked down at the three of them. "Got the saw?" he said to George.
Johnny was the only little boy. The children had lived there all their lives.

Derivation: Two lexical items share the same semantic root and are usually the same part of speech.

bunks - bunkhouse cloud - cloudburst

Inclusion: A general word or phrase is used to refer back to and sum up a previous group of words (not a single word) which identify and describe an event or happening.

---

*All referential pronouns are to be counted in this category. Consequently all other categories (except Inclusion) will include nouns.

I was too lazy to chew my cud - that's why.
At last they had finished the preparations - it had been exhausting.

Formal Repetition: A lexical item is repeated, but it does not refer to the same object or event but instead introduces a different member or subset of the class.

The Baker's Daughter has blue dresses and pink dresses and spotted dresses.

Logical Information

Conditional: Applies to relationships between events where the second event follows from or must be preceded by the first event. This includes cases where the relationship may be causal.

(He knew he couldn't get home before it poured) so (he decided to take shelter.)
(I live now far from Troy) because (on that terrible night we were driven from our home.)

If so/and so begins a T-unit it is considered as conjunction; if within a T-unit, it is conditional.

Conjunction: When two clauses are simply joined together in equivalence.

(The queen was an excellent housekeeper) and (kept the palace in perfect order.)

Disjunction: When one or another event occurs, but not both.

(Most other kids couldn't) or (wouldn't do.)

Temporal Conjunction: An event happens at the same time as another event.

When (he heard the song of a bird) (he nodded.)

Temporal Disjunction: One event happens either before or after another event.

(It tripped gaily over the King's favourite flower-beds) then (sprang on the lawn.)
After (school) (the kids were out in the back of our apartment house.)

And then is taken together and indicates temporal disjunction.

Contrast: Sets one element in contrast or opposition to another. If A not B. Uses connectives like but, although, nevertheless.

(A host of startled flamingoes wheeled about our heads) but (the dreadful din was very welcome.)

Comparison: Involves comparing two elements along some dimension, attribute, or property - A more than or less than B. Often the second verb is deleted.

(His whistle cut through the still, then ceased) like (the drop of a curtain.)

Spatial: Indicates place where an event occurred.

(In the bush country of Northern Ontario) where (they lived.)

SYNTACTIC STRUCTURES

A syntactic structure may be one of three types:

1. a T-unit, which was the unit considered to be the utterance in the language analysis.

2. a basic T-unit, which is the simplest independent predication which may be used to convey information.

3. an alternate syntactic structure which with a basic T-unit makes up a T-unit, and which with the addition or substitution of words could become a basic T-unit. The alternate structures analyzed are:

Relative Clause:

Just then the little mongoose heard a cold, horrid sound behind him that made him jump two feet in the air.

That + S as Object/Subject/Complement:

He spotted a box of old junk that Hiram was throwing out.
That the witch had no money was clear.
It seemed that the answer was wrong.

WH + S as Object/Subject:

You can always tell what a pachyderm's thinking.
What you enjoy gives me pleasure too.

Infinitive as Object:

Your daddy told you to stop to home.

Infinitive of Purpose:

He was ready to go to the stable to do his chores.

Ing - Nominalization:

But one year waits before the coming of the Holy Grail.

Ing - Nominalization of Purpose:

He was ready for fighting his way out.

Adverbial Expansion of Man + S:

The African headman put the question so cautiously that Jackie continued to stalk the grasshopper.

Adverbial Expansion 1:

Everyone avoided him as if he had the plague.

Adverbial Expansion 2:

The road was very dusty and full of hard stones.

Common Elements:

Gyrth's wife had welcomed the cow, but not Lovell.

WH:

He would not be able to perform the valiant deeds he meant to do.

WH + Auxiliary/Verb:

Greg, pretending he was Mr. Christian in "Mutiny on the Bounty", clasped his hands behind his back.

(That) + S as Object:

Hope I get out of here before he reminds me ours is the only cabin on the lake.

That + S as Object quotation (the quotation must contain a verb):

Dad told me, "There are lots of good ball players who come from small towns."

Comparative 1:

He crept forward as silently as he could move.

Comparative 2:

Beacon rock towered nine hundred feet high like a giant sentinel.

With Phrase:

Beside her was a little book with pictures of the things these coupons could be exchanged for.

Adjective (before the noun):

Ma sat on the grassy bank.

Appositive:

"My legs can climb them blindfolded!" boasted Derek, her younger brother.

Participle (before the noun):

They put on old patched dresses.
The talking cat became a sensation.

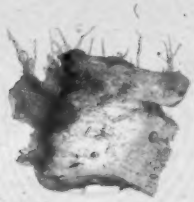
Genitive:

On the outskirts of the town there was a tumbledown garage.

Passive:

Each white hive was supported by a black hive-stand.

(This structure was not an alternate to the basic T-unit, but its presence was noted as it has implications for the focusing of the subject.)



Scoring Sheet 1

T-Unit Information

Passage No. _____

Series _____

Grade Level _____

No. of T-units _____

No. of Words in T-units _____

Average per T-unit _____

Relational Information

Subject _____

Direct Object _____

Indirect Object _____

Complement _____

Main Verb _____

Total _____

Denotational Information

Noun _____

Adjective _____

Adjective Phrase _____

Adjective Clause _____

Negative _____

Intensifier _____

Quantifier _____

Determiner _____

Total _____

Verb _____

Verbal _____

Adverb _____

Adverb Phrase _____

Adverb Clause time _____

Adverb Clause place _____

Adverb Clause manner _____

Adverb Clause condition _____

Negative _____

Intensifier _____

Modal _____

Total _____

Prepositions _____

Connectives _____

Expletives _____

Total _____

Grand Total (all denot) _____

Sentential Information

Declarative _____

Interrogative _____

Imperative _____

Scoring Sheet 2

Incomplete T-unit Information

Passage No. _____

Series _____

Grade Level _____

Number of Incompletes _____

No. of words in Incompletes ___

Average _____

Denotational Information

Noun _____

Adjective _____

Adjective Phrase _____

Adjective Clause _____

Negative _____

Intensifier _____

Quantifier _____

Determiner _____

Total _____

Verb _____

Verbal _____

Adverb _____

Adverb Phrase _____

Adverb Clause time _____

Adverb Clause place _____

Adverb Clause manner _____

Adverb Clause condition__

Negative _____

Intensifier _____

Modal _____

Total _____

Prepositions _____

Connectives _____

Expletives _____

Total _____

Grand Total (all denot) ____

Scoring Sheet 3

Alternate Syntactic Structures

Passage No. _____ Series _____ Grade Level _____

Relative Clause _____

That + S object/subject/complement _____

WH + S subject/object _____

Infinitive Object _____

Ing. Nominative _____

Infinitive of Purpose _____

Ing. Nominative Purpose _____

Adverb Expansion Manner + S _____

Adverb Expansion 1 _____

Adverb Expansion 2 _____

Common Elements _____

WH _____

WH + Auxiliary/Verb _____

(That) + S Obj. _____

That + S Obj. Quote _____

Comparative 1 _____

Comparative 2 _____

With Phrase _____

Adjective _____

Appositive _____

Participle _____

Genitive _____

Total _____

Passive _____

Scoring Sheet 4

Contextual Information

Passage No. _____ Series _____ Grade Level _____

Referential Information

Pronoun _____

Repetition _____

Synonym _____

Class Inclusion _____

Derivation _____

Inclusion _____

Formal Repetition _____

Total _____

Logical Information

Condition _____

Conjunction _____

Disjunction _____

Temporal Conj. _____

Temporal Disj. _____

Contrast _____

Comparison _____

Spatial _____

Total _____

Grand Total _____

Staging

No. of topics _____

No. of different topics _____

First Order	_____	_____
Second	_____	_____
Third	_____	_____
Fourth	_____	_____
Fifth	_____	_____
Sixth	_____	_____
Seventh	_____	_____
Eighth	_____	_____
Ninth	_____	_____
Tenth	_____	_____
Eleventh	_____	_____
Twelfth	_____	_____
Thirteenth	_____	_____
Fourteenth	_____	_____
Fifteenth	_____	_____
Sixteenth	_____	_____
Seventeenth	_____	_____
Eighteenth	_____	_____
Nineteenth	_____	_____
Twentieth	_____	_____

APPENDIX C

THE BASAL READERS

THE BASAL READERS: TITLES, EDITORS AND DATES

Series No. 1 Gage Strategies for Language Arts

Gage Educational Publishing Ltd.

Grade Level	Title	Editor	Date
4	People Like Me	Elizabeth Thorn M. Irene Richmond	1972
5	Something to Remember	Elizabeth Thorn Carl Braun	1973
6	How Many Miles?	Elizabeth Thorn Carl Braun M. Irene Richmond	1974

Series No. 2 Sounds of Language Readers

Holt, Rinehart, Winston Inc.

Grade Level	Title	Editor	Date
4	Sounds of Mystery	Bill Martin Jr. Peggy Brogan	1972 1966
5	Sounds of a Young Hunter	" "	1972 1966
6	Sounds of a Distant Drum	" "	1972 1966

Series No. 3 Young Canada Readers

Thomas Nelson and Sons (Canada) Ltd.
Editor-in-chief, J. L. Bowers.

Grade Level	Title	Editor	Date
4	Young Canada Readers 4	Jean Bailey	1961
5	Young Canada Readers 5	Gerald McKay	1963
6	Young Canada Readers 6	K. M. Given	1965

Series No. 4 Nelson Language Development Reading Program

Thomas Nelson and Sons (Canada) Ltd.

Grade Level	Title	Editor	Date
4	Vol. 1: Driftwood and Dandelions	John McInnes Emily Hearn	1970
	Vol. 2: Hockey Cards and Hopscotch	" "	1971
5	Northern Lights and Fireflies	" "	1971
6	Vol. 1: Sleeping Bags and Flying Machines	" "	1973
	Vol. 2: Toboggans and Turtlenecks	" "	1973

Series No. 5 Starting Points in Reading

Ginn and Company

General Editor, Bill Moore.

Grade Level	Title	Editor	Date
4	Starting Points in Reading A First Book	Heather Hooper	1972
	Starting Points in Reading A Second Book	" "	1973
5	Starting Points in Reading B First Book	Gladys White James Shular	1973
	Starting Points in Reading B Second Book	" "	1974
6	Starting Points in Reading C First Book	Marion Cross Jan Hulland	1974
	Starting Points in Reading C Second Book	" "	1975

Series No. 6 The Canadian Ginn Basic Readers

Ginn and Company

David H. Russell, W. John McIntosh and others.
Harold M. Nason, Consultant.

Grade Level	Title	Editor	Date
4	Adventure Awaits	W. John McIntosh Jessie W. Shular	1962
5	Beyond the Horizon	W. John McIntosh H. Elizabeth Orchard	1962
6	New Worlds	W. John McIntosh Muriel A. Affleck	1962

APPENDIX D

LOCATION OF LANGUAGE SAMPLES IN BASAL READERS

LOCATION OF LANGUAGE SAMPLES IN BASAL READERS

Series No.	Grade	Title	Pages Selected
1	4	People Like Me	I/28,29 I/74,75 II/50,52 IV/65 IV/72 V/6,7
1	5	Something to Remember	I/39 I/74, 75 II/50, 51 II/86, 87 III/42, 43 IV/72, 73
1	6	How Many Miles	I/34, 35 I/59, 60 II/27, 28 III/28, 29 III/44, 46 IV/62, 63
2	4	Sounds of Mystery	56-58 79-82 146-149 225-230 268-271 362-371
2	5	Sounds of a Young Hunter	28, 29 73-75 152-155 208-210 320-323 372-373
2	6	Sounds of a Distant Drum	56-58 77-81 153-155 201-205 287-290 324-329
3	4	Young Canada Readers 4	21, 22 69, 70 139-141 189, 190 263, 264 338, 339

Series No.	Grade	Title	Pages Selected
3	5	Young Canada Readers 5	26, 27 69, 70 137-139 197, 198 278-280 341, 342
3	6	Young Canada Readers 6	53, 54 88, 89 145, 146 198-200 273, 274 350, 351
4	4	Driftwood and Dandelions	14, 15 49, 50 146, 147
4	4	Hockey Cards and Hopscotch	66-68 85-87 194, 195
4	5	Northern Lights and Fireflies	19, 20 32, 33 73, 74 108, 109 158, 159 183, 184
4	6	Sleeping Bags and Flying Machines	34, 35 91-94 155, 156
4	6	Toboggans and Turtlenecks	44-46 116, 117 158-161
5	4	Starting Points in Reading A First Book	68, 69 94-96 204, 205
5	4	Starting Points in Reading A Second Book	68-70 145, 146 182, 183
5	5	Starting Points in Reading B First Book	59, 60 79, 80 210, 211
5	5	Starting Points in Reading B Second Book	56, 57 109-111 186, 187

Series No.	Grade	Title	Pages Selected
5	6	Starting Points in Reading C First Book	22, 23 95, 96 172, 173
5	6	Starting Points in Reading C Second Book	24, 25 118, 119 185, 186
6	4	Adventure Awaits	33-35 110, 111 154-156 222, 223 295-297 361-363
6	5	Beyond the Horizon	64-67 84, 85 207-209 235, 236 290-292 334-336
6	6	New Worlds	50, 51 78, 79 164, 166 248, 249 307, 309 364, 365